Question:

A 64-year-old man has had a diagnosis of stable angina from a rapid access chest pain clinic a year ago. He was commenced on glyceryl trinitrate (GTN) spray to be used as and when the chest pain occurred and bisoprolol to be taken every day.

These interventions initially worked until a few weeks ago when after walking 100 yards up the hill to his local shops he noticed the pain came back and was only partially relieved by GTN spray. electrocardiograms, troponin, echocardiography and a myocardial perfusion scan are all unremarkable.

What is the next best step in management?

A.Diltiazem

B.Ivabradine

C.Nicorandil

D.Modified release nifedipine

E.Verapamil

Answer:Modified release nifedipine

Explanation:

If angina is not controlled with a beta-blocker, a longer-acting dihydropyridine calcium channel blocker should be added

Modified release nifedipine would be used in addition to beta blockers to reduce the amount of ischaemia around the heart during times of stress with angina episodes, via means of vasodilation of the coronary arteries and the chronotropic effects respectively.

Diltiazem and verapamil are incorrect as both these calcium channel blockers (unlike nifedipine) have negative chronotropic effects on the heart, which would work synergistically with the beta blocker to slow the heart rate down too much and increase the adverse effect profile seen with both drugs.

Ivabradine and nicorandil are incorrect options at this stage. In this clinical scenario, a calcium channel blocker, such as nifedipine, should be initiated before these long-acting nitrates are introduced to reduce the symptoms related to uncontrolled chronic stable angina.

Question:

A 62-year-old woman presents to the emergency department with sudden-onset sweating and palpitations. The symptoms started two hours ago and have not improved. She has a past medical history of type two diabetes mellitus. She used to drink 40 units of alcohol per week but has not had any alcohol in 10 years. Her heart rate is 90/min and regular, respiratory rate 24/min, blood pressure 145/97 mmHg and temperature 36.8 ºC.

On examination, she looks extremely pale, short of breath and clammy. She denies any chest pain. The rest of the cardiovascular examination is unremarkable.

What is the most likely diagnosis?

A.Atrial fibrillation

B.Myocardial infarction

C.Pancreatitis

D.Pericarditis

E.Ruptured aortic aneurysm

Answer:Myocardial infarction

Explanation:

Acute coronary syndrome may present with atypical chest pain especially in female patients

The correct answer is myocardial infarction. This patient presents with sweating, palpitations, shortness of breath, tachycardia and tachypnoea. These are all stereotypical features of myocardial infarction, even if the patient does not complain of chest pain. It is important to remember that female and diabetic patients might not present with the classical chest pain of myocardial infarction and that it should always be ruled out with an immediate electrocardiogram and measurement of cardiac biomarkers. Myocardial infarction with an atypical presentation is common and tends to be seen in women, older men, and people with diabetes, it occurs in about 30% of the cases, hence it is important to remember that the patients might have mild or no pain, and have a normal heart rate and respiratory rate, other symptoms include abdominal discomfort, jaw pain, or an altered mental state in elderly patients.

Atrial fibrillation is a good differential but ruled out by the regular pulse on examination in this patient. One of the defining features of atrial fibrillation is an irregularly irregular pulse, which is absent in this case, making the option incorrect.

Pancreatitis usually presents with severe epigastric pain radiating to the back, classically relieved by leaning forward, traditionally accompanied by vomiting. Even if she has a past medical history of alcoholism, which is a risk factor for this condition, this patient does not have any of these features, making the diagnosis unlikely.

Pericarditis would classically present in young males with chest pain which gets better on leaning forward. This patient does not complain of chest pain which changes in intensity upon movement, making the option incorrect.

A ruptured aortic aneurysm would present with pain and shock, secondary to the loss of blood volume. Even if the heart rate is high, this patient's blood pressure is elevated, and she is hemodynamically stable, making the diagnosis unlikely.

Question:

A 7-year-old boy falls from the top of a slide and is taken to the Emergency Department. He is crying, complaining of a severe headache and regularly vomiting. A CT head is performed:

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What does the scan show?

A.Subarachnoid haemorrhage

B.Brain contusion

C.Extradural haematoma

D.Subdural haematoma

E.Meningioma

Answer:Extradural haematoma

Explanation:

The CT scan demonstrates a bi-convex (lentiform) extra-axial hyperdense collection consistent with an extradural haematoma.

Question:

A 32-year-old woman attends to have her copper intrauterine device (IUD) removed. She is currently on day 4 of her regular 30-day menstrual cycle. Following the removal of the IUD, she would like to start the combined oral contraceptive pill (COCP). There are no contra-indications to the COCP.

What is the most appropriate next step in the management of this patient?

A.Start the combined oral contraceptive pill today, no further contraceptive is required

B.Use barrier contraception for 2 more days and start the combined oral contraceptive pill on day 7 of the menstrual cycle

C.Start the combined oral contraceptive pill today and use barrier contraception for 5 days

D.Wait for 5 days and then start the combined oral contraceptive pill

E.Start the combined oral contraceptive pill today and use barrier contraception for 7 days

Answer:Start the combined oral contraceptive pill today, no further contraceptive is required

Explanation:

When switching from an IUD to COCP no additional contraception is needed if removed day 1-5 of cycle

The correct answer is that she can start the combined oral contraceptive pill (COCP) today , and does not require any additional contraception. When starting the COCP, it is effective immediately if started on days 1 - 5 of the menstrual cycle and this patient is on day 4. If the patient is unable to start the COCP today and she starts it from day 6 onwards, barrier contraception is required for 7 days.

There is no clinical need to delay the start of the COCP after the removal of the patient's IUD. A delay for a different reason causing the COCP to be started from day 6 onwards of the patient's menstrual cycle, will mean that the patient will require 7 days of barrier contraception.

Had this patient recently taken ulipristal as an emergency contraceptive, and then wished to start the COCP, she would need to wait for 5 days before starting hormonal contraception. This is not the case for this patient.

Question:

A 45-year-old old man presents with a several month history of itching, abdominal discomfort and fatigue. He reports no known medical issues and is not on any regular medications. He denies any alcohol or illicit drug use.

On examination, he has jaundice and bruising of the skin with hepatomegaly.

A diagnosis of primary sclerosing cholangitis is suspected as there is a family history of the condition. Basic blood tests reveal evidence of the associated liver failure therefore the patient is referred to a hepatologist for further work-up.

What is the investigation of choice to confirm this diagnosis?

A.Antimitochondrial antibody (AMA)

B.Liver biopsy

C.Liver ultrasound

D.Magnetic resonance cholangiopancreatography (MRCP)

E.Perinuclear anti-neutrophil cytoplasmic antibody (p-ANCA)

Answer:Magnetic resonance cholangiopancreatography (MRCP)

Explanation:

ERCP/MRCP are the investigations of choice in primary sclerosing cholangitis

Primary sclerosing cholangitis (PSC) is a chronic condition of unknown cause affecting the gallbladder and liver. Inflammation and scarring of the bile duct occur resulting in obstruction of the duct system and eventually liver cirrhosis and failure. The non-invasive magnetic resonance cholangiopancreatography (MRCP) is the standard investigation used to confirm the diagnosis with endoscopic retrograde cholangiopancreatography (ERCP) also used as a first-choice alternative. These cholangiopancreatographies reveal alternating biliary strictures and dilatation inside and/or outside the liver giving a hallmark ‘beaded’ appearance.

An antimitochondrial antibody (AMA) test is the diagnostic investigation of choice in the similar but separate condition of primary biliary cholangitis (PBC), where progressive destruction of the small bile duct within the liver results in cholestasis. Approximately 90-95% of PBC patients are AMA positive compared to just 1% of controls. AMAs are not associated with PSC.

There is only a limited role for liver biopsy in the diagnosis of PSC. Given its invasive nature and reduced sensitivity/specificity compared to other investigations, liver biopsy is not normally required however tissue sampling may show fibrous, obliterative cholangitis to aid confirm the diagnosis.

Liver ultrasound may be useful to rule out differential diagnosis in patients presenting with PSC such as gallstones etc however it has limited specificity for PSC. It can also play a role in monitoring for complications but it is not routinely used in the initial diagnosis of the condition.

Approximately 80% of PSC patients are perinuclear anti-neutrophil cytoplasmic antibody (p-ANCA) positive however this is not specific to the condition. p-ANCA can be found in several other conditions, and it is unclear if their presence in PSC patients has any clinical significance.

Question:

Which one of the following is not a first-rank symptom of schizophrenia?

A.Thought broadcasting

B.Visual hallucinations

C.Thought withdrawal

D.Delusional perceptions

E.Auditory hallucinations

Answer:Visual hallucinations

Explanation:

Question:

A 25-year-old patient presents to an emergency appointment. She gives a 2-day history of left-sided ear pain before waking up today with a facial paralysis. You notice her mouth is drooping downwards on the left and she cannot completely close her left eye. You suspect a diagnosis of Bell's Palsy. What finding would you expect if you asked the patient to raise her left eyebrow and why?

A.Ability to raise the left eyebrow as Bell's Palsy only affects the facial muscles below the level of the eyebrow

B.Inability to raise the left eyebrow as Bell's palsy is due to an upper motor neuron lesion

C.Inability to raise the left eyebrow as Bell's palsy is due to a lower motor neuron lesion

D.Ability to raise the left eyebrow as normal because Bell's palsy does not affect the facial nerve

E.Ability to raise the left eyebrow as frontalis muscle is not affected by Bell's palsy

Answer:Inability to raise the left eyebrow as Bell's palsy is due to a lower motor neuron lesion

Explanation:

Bell's palsy is a lower motor neurone facial nerve palsy- the movement of the forehead/ eyebrow-raising is therefore affected. The other answers are incorrect as they do not fit the pattern of Bell's palsy.

Question:

A couple presents to their GP asking for advice about fertility. They have been having unprotected sexual intercourse 3 times a week for 1 year.

The GP suggests semen analysis and measuring serum progesterone levels.

When is the most appropriate time to measure serum progesterone levels?

A.14 days prior to the expected next period

B.7 days prior to the expected next period

C.On day 14 of the menstrual cycle

D.On day 21 of the menstrual cycle

E.On day 7 of the menstrual cycle

Answer:7 days prior to the expected next period

Explanation:

To confirm ovulation: Take the serum progesterone level 7 days prior to the expected next period

A progesterone level should be taken 7 days prior to the expected next period. A level >30nmol/l indicates ovulation so other causes of infertility should be considered. A level below 30nmol/l does not exclude the possibility of ovulation but repeat testing will be required followed by referral to a specialist if it is consistently low.

While day 21 of the menstrual cycle could be 7 days prior to the patient's next period if they had 28-day cycles, this is not the best answer as 7 days prior to the next period is more accurate as the length of a menstrual cycle can vary.

Question:

A 73-year-old man presents to the emergency department with shortness of breath. The patient describes a sudden shortness of breath that began 4 hours previously. He is also experiencing left-sided chest pain that is worse upon inspiration. The doctor in the emergency department is considering a pulmonary embolism. He orders a full blood count, urea and electrolytes, liver function tests, troponin T and a D-dimer.

What is the most appropriate from the list below to exclude other pathologies?

A.CT aortogram

B.CT thorax without contrast

C.Chest X-ray

D.Echocardiogram

E.V/Q Scan

Answer:Chest X-ray

Explanation:

A chest xray is an essential investigation when investigating a PE

The correct answer is a chest X-ray. A chest X-ray is recommended for all patients with pulmonary embolism to rule out other pathologies. While it is not a diagnostic investigation for pulmonary embolism, NICE recommends using it to exclude pathologies such as pneumothorax or pleural effusion. The chest X-ray is often normal, but it may occasionally show a wedge-shaped opacification. This would support a diagnosis of pulmonary embolism.

Echocardiogram is incorrect. This investigation could be used to diagnose cardiac pathologies; however, it is often harder to arrange and requires specific individuals to interpret. Furthermore, a chest x-ray allows you to identify a wider range of pathologies contributing to the presentation and is easier to perform. This makes a chest x-ray the most appropriate over an echocardiogram.

CT aortogram is incorrect. In this patient, the likely diagnosis is PE. CT aortogram is used to diagnose an aortic dissection, not a pulmonary embolism, and therefore would not be appropriate as an initial investigation for this patient.

V/Q Scan is incorrect. This would be appropriate to diagnose pulmonary embolism if the patient was pregnant or had significant renal impairment where contrast cannot be used. This is not the case in this scenario and therefore is not an appropriate initial investigation.

CT thorax without contrast is incorrect. While this investigation could be used, a chest X-ray is a preferable initial investigation. It involves less radiation burden for the patient and is quicker to organise.

Question:

A 54-year-old male with a past medical history of hypertension, obesity, gout and hypercholesterolemia has a sudden onset of diarrhoea.

Which of his medications is most likely to be responsible?

A.Amlodipine

B.Colchicine

C.Simvastatin

D.Ramipril

E.Allopurinol

Answer:Colchicine

Explanation:

Colchicine can cause diarrhoea

Diarrhoea is a classic side effect of colchicine, a drug used to treat acute exacerbations of gout. This is the reason some doctors do not prescribe it, preferring to use naproxen or prednisolone. The other drugs listed do not commonly cause diarrhoea.

Question:

A 25-year-old man presents to his GP complaining of a red and painful eye. His right eye has been red and watery since yesterday morning, with a gritty sensation. He usually wears contact lenses on a daily basis. However, has found it too painful to use these since his symptoms began.

On fundoscopy, the GP visualises a hypopyon in the right eye. No foreign body is visible. The left eye appears normal. Both pupils are round, equal and reactive to light. Visual acuity is normal when wearing glasses, however marked photophobia is evident in the right eye.

What is the most likely cause of these symptoms?

A.Pseudomonas aeruginosa

B.Staphylococcus aureus

C.Acanthamoeba

D.Herpes simplex virus

E.Ulcerative colitis

Answer:Pseudomonas aeruginosa

Explanation:

Pseudomonas infection should be suspected in contact lens associated keratitis

Important for meLess important

Pseudomonas aeruginosa is correct. The symptoms and presentation here are indicative of keratitis. The most common cause of bacterial keratitis in contact lens wearers is Pseudomonas aeruginosa. This will require ophthalmological review and antibiotic treatment with a topical quinolone.

Staphylococcus aureus is incorrect. This is normally the most common cause of bacterial keratitis. However, in patients regularly using contact lenses, Pseudomonas aeruginosa is the most common cause.

Acanthamoeba is incorrect. This is a cause of keratitis that comes from contaminated water, where the pain is usually disproportionate to findings. This can present in contact lens users who wash their lenses in water instead of contact lens solution. However, this is much less common than Pseudomonas as it is only responsible for 5% of cases.

Herpes simplex virus is incorrect. This is a serious cause of keratitis, as it is the most common cause of corneal blindness. This usually presents with a dendritic ulcer on slit-lamp examination, and would not show a hypopyon.

Ulcerative colitis is incorrect. Approximately 10% of people with inflammatory bowel disease (IBD) will experience complications relating to the eyes; most commonly anterior uveitis, which would also cause a red, painful, watery eye, along with a visible hypopyon. There is however no indication of IBD in this history, whereas the use of contact lenses makes Pseudomonas keratitis more likely.

Question:

A 55-year-old woman presented to her general practice with hearing loss and tinnitus for the past 3 weeks. She has also noticed several episodes of vertigo. This was associated with nausea in the past few days and several episodes of vomiting this week. She has not noticed any discharge from her ears and denied having otalgia. On examination, there is no erythema or swelling of her ears and no tenderness on palpation. Rinne tests are positive in both ears (air conduction > bone conduction). On Weber test, the sound lateralized to her right ear.

What type of hearing loss does she have?

A.Left sided conductive hearing loss

B.Left sided combined sensorineural and conductive hearing loss

C.Right sided sensorineural hearing loss

D.Right sided conductive hearing loss

E.Left sided sensorineural hearing loss

Answer:Left sided sensorineural hearing loss

Explanation:

Sensorineural hearing loss

Rinne result: Air conduction > bone conduction bilaterally

Weber result: Lateralises to unaffected ear

Important for meLess important

Left-sided sensorineural hearing loss is the correct answer. Rinne and Weber's tests are being performed to evaluate hearing loss. Rinne serves as a quick screen for conductive hearing loss whereas the Weber test is used to screen for unilateral sensorineural or conductive hearing loss. In this scenario, Rinne tests are positive on both ear, implies that air conduction (AC) > bone conduction (BC) which is normal. On the Weber test, the sound lateralized to her right ear, which implies an abnormal test result. This could be either right-sided conductive hearing loss or left-sided sensorineural hearing loss. Given that the Rinne test is positive bilaterally (which means there is no conductive hearing loss), we can conclude that she has left-sided sensorineural hearing loss. In addition to the history given, it is likely to be Meniere's disease which will present with unilateral sensorineural hearing loss, tinnitus, vertigo, nauseous and vomiting.

Left-sided conductive hearing loss is indicated by a negative Rinne test (BC>AC) to the left ear and the sound lateralizing to the left ear on the Weber test, which is not seen in this scenario.

Left-sided combined sensorineural and conductive hearing loss is indicated by a negative Rinne test (BC>AC) to the left ear, a positive Rinne test (AC>BC) to the right ear and the sound lateralizing to the right ear on Weber test, which is not seen in the scenario.

Right-sided sensorineural hearing loss is indicated by positive Rinne test (AC>BC) bilaterally and the sound lateralizing to the left ear on Weber test, which is not seen in this scenario.

Right-sided conductive hearing loss is indicated by a negative Rinne test (BC>AC) to the right ear and the sound lateralizing to the right ear on the Weber test, which is not seen in this scenario.

Question:

A 21-year-old woman has an ectopic pregnancy confirmed by ultrasound. However, the ultrasound report simply states the ectopic pregnancy is located within the 'right fallopian tube' but does not offer more specific information. You decide to call the ultrasound department seeking clarification of the precise location as you know this will influence management.

Ectopic pregnancy in which of the following locations is most associated with an increase risk of rupture?

A.Fimbriae

B.Cervix

C.Isthmus

D.Ampulla

E.Interstitium

Answer:Isthmus

Explanation:

Ectopic pregnancy localised to the isthmus increases the risk of rupture

Important for meLess important

Ectopic pregnancy can occur anywhere from the ovary to the cervix, and even outside the reproductive organs in the peritoneum. Of the locations listed the isthmus of the fallopian tube is least able to expand to accommodate the growing embryo/fetus and is therefore most prone to rupture. The cervix is not part of the fallopian tube.

Question:

A 78-year-old man is admitted to the stroke ward. You are asked to examine him. He denies any headache. You find he has normal motor function but has completely lost sensation on the right hand side of his body. There is no hemianopia or dysphasia. What type of stroke is this?

A.Total anterior circulation stroke

B.Partial anterior circulation stroke

C.Posterior circulation stroke

D.Lacunar stroke

E.Haemorrhagic stroke

Answer:Lacunar stroke

Explanation:

Lacunar strokes can present with

unilateral motor disturbance affecting the face, arm or leg or all 3.

complete one sided sensory loss.

ataxia hemiparesis.

A total anterior circulation stroke would present with homonymous hemianopia, unilateral weakness and higher cortical dysfunction e.g. neglect. A partial anterior circulation stroke has 2 out of 3 symptoms. A posterior circulation stroke presents with isolated homonymous hemianopia, loss of consciousness or cerebellar signs. A haemorrhagic stroke presents suddenly with a thunderclap headache.

Question:

A 65-year-old man with chronic bronchiectasis presents to his GP as he has heard about some surgery that may be available to him. Which of the following is an indication for surgery in bronchiectasis?

A.PaO2 <7.3kPa despite maximal treatment

B.Terminally ill patients

C.PaO2 7.3-8kPa with peripheral oedema

D.High resolution CT shows disease localised to one lobe

E.PaO2 7.3-8kPa with polycythaemia

Answer:High resolution CT shows disease localised to one lobe

Explanation:

Localised disease is an indication for surgery in bronchiectasis

Important for meLess important

This question is asking about the indications for surgery in bronchiectasis. The main 2 indications for bronchiectasis are uncontrollable haemoptysis and localised disease. Therefore, in this case, the disease being localised to one lobe would be an indication.

The other options are all indications for long-term oxygen therapy in chronic obstructive pulmonary disease (COPD) and thus are not correct in this case.

Question:

A 60-year-old man attends the GP accompanied by his wife. He states that he had been experiencing a dull, generalised headache for the last 6 months that has now begun progressively getting worse. Paracetamol and ibuprofen have not helped with the pain. His wife has also noticed that he struggles to remember things and that he is no longer able to make decisions for himself or manage his finances. His past medical history consists of well-controlled hypertension and type 2 diabetes. He does not have any drug allergies.

What is the most appropriate next step in this patient's management?

A.Admit to emergency department

B.Referral to memory clinic

C.Safety netting and send home with codeine

D.Urgent CT scan

E.Urgent blood pressure check

Answer:Urgent CT scan

Explanation:

Progressively worsening headache with higher cognitive function impaired = urgent imaging required

Important for meLess important

Urgent CT scan is the correct answer. This patient is presenting with a progressive worsening long-term headache accompanied by memory impairment and decision-making indicating impaired higher cognitive function. Other examples of high cognitive function include attention, planning and problem-solving, and it is important to ask about these further in history. In this patient given that there is evidence these factors are impaired alongside a progressively worsening headache, it is vital that urgent brain imaging be undertaken to exclude possible brain tumours that may be affecting frontal lobe function or causing other symptoms. Usually, when brain imaging is necessary a CT scan is performed initially as it is more readily available and faster than an MRI scan.

Admit to emergency department is incorrect. Although it is likely that this patient's presentation may be secondary to underlying serious pathology, there is nothing in his current presentation to suggest acute urgency with his condition. Therefore, it would not be appropriate to admit him to the emergency department. Instead, an urgent outpatient CT scan can be organised by his GP.

Referral to memory clinic is incorrect. Dementia is an important differential and would be a route we would go down if this patient's brain imaging was insignificant. It is important to gather a detailed history of this patient's baseline for further information before considering referral to a memory clinic. At this time, however, the most urgent thing to consider is urgent imaging of this patient's brain.

Safety netting and send home with codeine is incorrect. It would not be appropriate to let this patient go home with no further investigation given his presentation, although in the meantime whilst waiting for his scan titrating his pain relief is important. Usually following paracetamol and ibuprofen for which this patient is already taking, co-codamol would be appropriate.

Urgent blood pressure check is incorrect. A hypertensive headache is again an important differential to consider in this patient. A hypertensive headache would classically present with a constant throbbing headache that is worse in the morning and when coughing and sneezing. There would classically also be visual symptoms. This is not seen in this man's presentation therefore it is not likely his headache is due to hypertension. Additionally, his blood pressure is well controlled.

Question:

A 65-year-old woman presents to her GP with a productive cough that has been present for 8 days. She is examined and sent for blood tests.

On examination, coarse crackles are heard over the left lower lobe. A chest X-ray shows left lower lobe consolidation.

Hb 94 g/L Male: (135-180)

Female: (115 - 160)

Platelets 144 \* 109/L (150 - 400)

WBC 13.0 \* 109/L (4.0 - 11.0)

Na+ 133 mmol/L (135 - 145)

K+ 4.9 mmol/L (3.5 - 5.0)

Bicarbonate 27 mmol/L (22 - 29)

Urea 9.7 mmol/L (2.0 - 7.0)

Creatinine 159 µmol/L (55 - 120)

Calcium 2.9 mmol/L (2.1-2.6)

The GP is concerned and sends the patient for further investigations including a bone marrow aspiration.

What would you expect to see in her aspirate?

A.Bence Jones proteins

B.Increased number of plasma cells

C.Osteolytic lesions

D.Rain-drop bone marrow

E.Rouleaux formation

Answer:Increased number of plasma cells

Explanation:

Multiple myeloma: bone marrow aspirate would show plasma cells

Important for meLess important

This patient has a very likely diagnosis of multiple myeloma. She fits many of the criteria shown in the CRABBI mnemonic (shown in detail in the PassMedicine handbook). She has hypercalcemia, renal dysfunction, anaemia, thrombocytopenia, and evidence of infection (pneumonia). This patient is presenting with an infection that leads to incidental findings of myeloma. This infection is present as a result of there being a reduced number of normal immunoglobulins produced as a result of the myeloma.

The question asks about the diagnosis of myeloma based on the bone marrow aspirate.

Increased number of plasma cells is correct. This patient has a likely diagnosis of multiple myeloma. Multiple myeloma is a cancer of the plasma cells. Plasma cells normally reside in the bone marrow in very small numbers. However, when they become cancerous (as they do in myeloma), they rapidly proliferate causing an increased number of plasma cells in the bone marrow. Therefore, this is what you would expect to see on the bone marrow aspirate of this patient.

Bence Jones proteins is incorrect. Bence Jones proteins are seen in myeloma. However, they are the proteins that would be seen in the patient's urine, not in their bone marrow aspirate. Bence Jones proteins refer to monoclonal IgA/IgG proteins that are secreted by myeloma cells. They are a common finding in myeloma patients but are found in the urine, not the bone marrow.

Osteolytic lesions is incorrect. Osteolytic lesions are seen in myeloma. However, osteolytic lesions are a finding that you would see on an MRI scan or an X-ray, as opposed to on bone marrow aspiration. Osteolytic lesions refer to lesions of bone that are damaged/softened as a result of the myeloma.

Rain-drop bone marrow is incorrect. Rain-drop bone marrow does not exist. The term you may be thinking of here is a rain-drop skull - this is a common finding in myeloma and refers to the appearance of the skull when seen via an X-ray. This finding refers to the appearance of the skull looking as though it has been splashed by rainwater with random patches of darkened bone (such as raindrops on the floor).

Rouleaux formation is incorrect. A rouleaux formation refers to the findings seen in a peripheral blood smear of patients with myeloma, not a bone marrow aspirate. A rouleaux formation refers to the stacking together of red blood cells - in myeloma, caused by increased levels of fibrinogen and immunoglobulins.

Question:

A 45-year-old man attends the emergency department complaining of a fever, shortness of breath, and night sweats for 3 weeks. On examination, he is haemodynamically stable and a new murmur is heard over the tricuspid region. He is currently on a methadone program but admits to occasionally still injecting heroin. He has a full set of bloods taken including a set of blood cultures.

What is the most appropriate next step in management?

A.Commence IV antibiotics

B.Perform CT thorax

C.Perform trans-oesophageal echocardiography

D.Perform trans-thoracic echocardiography

E.Take two more sets of blood cultures

Answer:Take two more sets of blood cultures

Explanation:

3 sets of blood cultures are recommended in the investigation of infective endocarditis

Important for meLess important

This patient has a history that raises suspicion of infective endocarditis as well as a new murmur. The most important initial investigation is to take blood cultures in order to identify the organism and tailor antibiotic therapy. The current guidelines on infective endocarditis explicitly mention the increased difficulty in choosing appropriate antibiotics when blood cultures are negative. Therefore, the recommendation is that three cultures are taken 30 minutes apart prior to commencing antibiotics (section 5.4.2 European Society of Cardiology guidelines).

This patient is haemodynamically stable and so waiting an additional hour for two blood cultures, to maximise the chances of identifying the causative organism, is the best option. Therefore, the most appropriate next step is to take two more sets of blood cultures .

Commencing IV antibiotics is an essential step but, given that the patient is haemodynamically stable, the blood cultures should be prioritised prior to antibiotic therapy to maximise their sensitivity. The number of cultures needed prior to antibiotic therapy can vary between hospital trusts. However, it will always be a minimum of two cultures prior to antibiotic therapy and so this is not the most appropriate answer.

Performing a CT thorax is not inappropriate in this scenario as there is suspicion of possible endocarditis. A CT chest will not be able to diagnose endocarditis; an echocardiogram is required. However, this patient is in the early stages of being managed for possible endocarditis. Therefore, the priority is to take two more cultures before initiating antibiotic therapy. If a chest x-ray was unremarkable and the patient remained short of breath, a CT thorax may be indicated to assess for respiratory involvement. In endocarditis, this may manifest as septic emboli in the lungs or a pleural effusion.

Transoesophageal and transthoracic echocardiography would be useful to visualise any valvular vegetation and the extent of valvular damage. However, in the acute scenario, blood cultures and IV antibiotics would take priority first. After this, transthoracic echo is usually preferred as it is less invasive. If it is inconclusive and clinical suspicion is high, a transoesophageal echo would be the next option.

Question:

A 34-year-old man presented to the emergency department. He looked unwell and has a temperature of 38.2ºC. He is normally fit and well without any past medical condition. He is an iv drug user. He drinks 10 units of alcohol per week and smokes 1 pack a day.

Examination of the cardiovascular and respiratory system revealed a pansystolic murmur in the left lower sternal edge and enlarged cervical lymph nodes.

Which of the following will be most helpful to make the diagnosis?

A.Chest X ray

B.Blood cultures

C.CT scan of the thorax

D.Biopsy of the cervical lymph nodes

E.Electrocardiogram

Answer:Blood cultures

Explanation:

3 sets of blood cultures are recommended in the investigation of infective endocarditis

Important for meLess important

In someone with fever and heart murmur, consider infective endocarditis. In this patient, the pansystolic murmur auscultated over the tricuspid valve area is indicative of tricuspid regurgitation. In the context of an IV drug user and in the presence of fever and systemic upset, infective endocarditis is the most likely diagnosis.

To diagnose infective endocarditis, Duke Criteria should be relied upon. The two major criteria require blood cultures and an echocardiogram. Other options will not help to diagnose infective endocarditis although may be helpful in excluding other (less likely) pathology.

Question:

A 45-year-old woman presents with fever, rigors and left iliac fossa pain to the emergency department in Manchester. She has polycystic kidney disease (PKD) and 2 months ago she received a renal transplant on the left side for end-stage renal failure. She is currently on mycophenolate mofetil 1g twice daily and prednisolone 10 mg once daily.

Investigations:

White cell count 16 x 10^6 / dL

Urine Microscopy White cells +++, no organisms seen.

Her kidney function tests are as follows:

Post-Transplant Current Admission

Urea 4.1 mmol/L 9.1 mmol/L

Creatinine 98 µmol/L 140 µmol/L

Potassium 4.9 mmol/L 5.3 mmol/L

What is the most likely diagnosis?

A.Kidney abscess (infection of PKD cyst)

B.Iatrogenic renal nephrolithiasis

C.Opportunistic fungal infection

D.Acute graft rejection

E.Chronic graft rejection

Answer:Acute graft rejection

Explanation:

Acute graft failure happens within months, is usually asymptomatic and is picked up by a rising creatinine, pyuria and proteinuria

Important for meLess important

Out of the above options, this is the correct diagnosis. Acute rejection occurs within 6 months and typically presents with signs and symptoms of infection. The diagnosis can only be confirmed with biopsy of the transplanted kidney. The best initial management is to increase the steroid dose. Chronic rejection presents insidiously with deteriorating renal function. This can occur after 6 months from transplant.

The affected kidney is the transplanted kidney, as shown by symptoms and urine microscopy (I.e not left native or left transplant). However if the symptoms were on the contralateral side there could be an infection of a cyst in the diseased kidney.

Nephrolithiasis and opportunistic fungal infection are not correct.

Question:

Prior to meeting a 22-year-old medical student for his first occupational health appointment, the clinic doctor reviews the results of a blood test that the patient had taken the previous week for hepatitis B serology.

anti-HBc IgG Positive

anti-HBc IgM Negative

anti-HBs Negative

HBsAg Positive

What do these blood tests indicate?

A.Acute infection with hepatitis B

B.Chronic infection with hepatitis B

C.Immunity following previous infection with hepatitis B

D.Immunity following previous vaccination to hepatitis B

E.No previous contact with hepatitis B

Answer:Chronic infection with hepatitis B

Explanation:

Positive anti-HBc IgG, negative anti-HBc IgM and negative anti-HBc in the presence of HBsAg implies chronic HBV infection

Important for meLess important

Chronic infection with hepatitis B will show positive HBsAg (hepatitis B surface antigen), which is usually the first positive marker in acute hepatitis B infection. If HBsAg remains positive for over 6 months, the patient has a chronic hepatitis B infection. The fact HBsAg is positive in this patient indicates either acute or chronic infection with hepatitis B (as it is not clear how long this marker has been positive). In response to infection, the host will produce antibodies to the hepatitis B core antibody (anti-HBc), which remain indefinitely. In acute infection (i.e. infection within the first 6 months), IgM antibodies are produced. These are gradually replaced with IgG antibodies. This patient has negative anti-HBc IgM and positive anti-HBc IgG, meaning there is no acute infection. The presence of chronic infection is confirmed by the fact that anti-HBs (i.e. antibodies to HBsAg) is negative. These antibodies are only present in those who are immune, either through clearing the virus naturally or through immunisation.

Acute infection with hepatitis B will also result in positive HBsAg. However, in acute infection, anti-HBc IgM would also be positive. This indicates exposure to the virus within the last 6 months. Over time, this is replaced with anti-HBc IgG, which indicates resolved or chronic infection. Anti-HBs would be negative, as the infection has not been cleared. In summary, in contrast to chronic infection, acute infection is positive for anti-HBc IgM and negative for anti-HBc IgG. Both are positive for HBsAg (indicating infection) and negative for anti-HBs (as the infection has not been cleared).

Immunity following previous infection would be positive for anti-HBc IgG (as this remains indefinitely) and positive for anti-HBs (showing the body has cleared the virus previously). As the virus has been cleared, HBsAg is negative.

Previous vaccination would show positive anti-HBs (i.e. positive antibodies to the hepatitis B surface antigen) only, as this antibody has been introduced through vaccination. The body has never met the virus itself, so HBsAg would be negative (as there is no acute or chronic infection present) and there would be no anti-HBc (either IgG or IgM) as this is only formed through direct contact with the virus.

No previous contact with hepatitis B would result in all of the serology tests being negative, indicating that the patient has never met the virus naturally and has never had anti-HBs introduced through vaccination.

Question:

A 49-year-old Caucasian male presents with a 12 week history of pus-like discharge from his ear. You decide to perform otoscopy. What is the most important part of the tympanic membrane to visualise?

A.Attic

B.Cone of light reflex

C.Pars tensa

D.Lateral process of the malleus

E.Annulus

Answer:Attic

Explanation:

In patients with chronic or recurrent ear discharge, ensure the attic is visualised to exclude cholesteatoma

Important for meLess important

The attic (pars flaccida) is extremely important to visualise., and any crusting or ear wax obscuring the attic is a cholesteatoma until proven otherwise. This is because cholesteatomas have a high risk of complications. The can extend posteriorly, causing conductive hearing loss (ossicles), vertigo (semicircular canals), or sensorineural hearing loss (cochlea). They can also extend superiorly, resulting in complications such as facial nerve palsy, meningitis, cerebellar abscess or venous sinus thrombosis.

Question:

A 84-year-old man is admitted to the medical ward with an infected diabetic foot ulcer.

A swab of the infected ulcer is taken at admission. The following results are available later that day.

MICROSCOPY GRAM-POSITIVE COCCI IN CLUSTERS

COAGULASE POSITIVE

MRSA QUANTITATIVE PCR POSITIVE

You call the microbiologist and after discussing the patient's history and examination findings, you agree that IV antibiotics are required.

What antibiotic should be started?

A.Ceftriaxone

B.Clindamycin

C.Flucloxacillin

D.Linezolid

E.Vancomycin

Answer:Vancomycin

Explanation:

Vancomycin is a useful antibiotic to treat MRSA infections

Important for meLess important

MRSA can be differentiated from MSSA in the microbiology lab by using a rapid PCR test. This enables the identification of MRSA before culture and sensitivity results are available.

Vancomycin is commonly used in the treatment of MRSA infection. Tigecycline would also be an appropriate choice.

Cephalosporins such as ceftriaxone are not effective against MRSA.

Clindamycin would only be used as monotherapy in MRSA infection once sensitivities are available due to relatively high rates of resistance. It is associated with Clostridium difficile infection and therefore should be used with caution in an elderly patient.

MRSA is resistant to flucloxacillin and therefore this would be inappropriate.

Linezolid can be used as monotherapy in the treatment of MRSA but it is generally reserved for resistant cases. There are no sensitivity results available and so linezolid would not be indicated.

Carbapenems including meropenem have poor activity against MRSA and therefore would be inappropriate.

Question:

A 45-year-old female presents to the emergency department complaining of pain in her right leg. She has recently returned from an international business trip and reports the sudden onset of this pain earlier in the day.

On examination, the right calf is swollen and tender on palpation. There is also notable pitting oedema that extends to the mid-shin. The right calf is measured as 4 cm larger than the left. The d-dimer is found to be elevated at 1043 ng/ml (<500 ng/ml).

Given the likely diagnosis, the patient is started on anticoagulation whilst awaiting an urgent ultrasound, as it cannot be performed within four hours. The result of this scan, however, is negative.

What is the most appropriate action?

A.Admit the patient for routine cancer screening

B.Stop anticoagulation, provide reassurance and discharge the patient

C.Stop anticoagulation and arrange a repeat ultrasound in 1 week

D.Continue anticoagulation for 3 months

E.Continue anticoagulation for 6 months

Answer:Stop anticoagulation and arrange a repeat ultrasound in 1 week

Explanation:

DVT investigation: if the scan is negative, but the D-dimer is positive → stop anticoagulation and repeat scan in 1 week

Important for meLess important

This patient has presented with unilateral calf swelling, pain and oedema. Taking into account the recent international trip, this should be treated as a deep vein thrombosis (DVT) until proven otherwise. In this situation, an urgent ultrasound must be arranged; if this cannot be done within 4 hours, then the patient should have their d-dimer levels measured and must be anti-coagulated in the interim. Apixaban or rivaroxaban are recommended as first-line interim agents.

Following a negative ultrasound, NICE recommend that interim anticoagulation can be stopped. It is therefore not appropriate to continue this for 3 to 6 months.

A repeat ultrasound should be arranged within 6-8 days of a negative ultrasound where there is a positive d-dimer, to fully confirm the absence of DVT. It is not safe to discharge the patient from your care without this follow-up.

As of 2020, NICE does not routinely recommend cancer screening following a confirmed DVT. They state that you should not offer further investigations for cancer to people with unprovoked DVT unless they have relevant clinical symptoms or signs.

Question:

A 4-year-old boy is brought to his GP by his parents who are concerned about his persistent bed-wetting. He does not have any issues with continence during the day but wets the bed about once a week. This is not a new problem and is no worse than usual. Otherwise, the child is healthy and active and has no significant medical history. His bowels are moving normally. They are not aware of any family history of similar problems, and the child has no siblings. Examination of the child is normal, and vital signs are within normal limits.

What is the most appropriate management for this child’s enuresis?

A.Offer an enuresis alarm system

B.Prescribe a laxative

C.Prescribe desmopressin

D.Reassurance that the problem will self-resolve

E.Referral for outpatient paediatric assessment

Answer:Reassurance that the problem will self-resolve

Explanation:

Children under the age of 5 years who have nocturnal enuresis can be managed with reassurance and advice

Important for meLess important

The correct answer is reassurance that the problem will self-resolve. Primary nocturnal enuresis, or nighttime bed-wetting, is a common problem in children. This affects around 15% of 5-year-olds and has a 15% resolution rate per year, so will resolve by itself in the majority of cases. Active treatment is not usually indicated unless the problem is secondary (i.e. it is a new problem or worsening) or associated with infection or another underlying disorder such as diabetes. This family should be reassured, and given practical advice about avoidance of caffeinated or fizzy drinks, and positive encouragement of regular voiding throughout the day.

Offer an enuresis alarm system is incorrect, as this is usually reserved for children over the age of 7 years who have persistent nocturnal enuresis. It involves a sound or vibration alarm that is triggered by moisture in the child’s clothing, to alert them that they need to go to the toilet instead. This child is too young at the moment, so simple reassurance and practical advice are more appropriate.

Prescribe a laxative is incorrect. Enuresis is commonly associated with constipation in children, so a full history of this should be taken. However, this child is having normal regular bowel motions so constipation is unlikely to be causing his enuresis, and therefore laxatives are not indicated.

Prescribe desmopressin is incorrect. This is an anti-diuretic that is given at night time to enable the child to unconsciously retain more fluid, and prevent bladder emptying prematurely. There are concerns about dangerous hyponatraemia and cerebral oedema if given regularly, so it should not be prescribed as a treatment for nocturnal enuresis. It can be used for older children on special occasions where bed-wetting would be less acceptable, but not for children under the age of 5 when nocturnal enuresis is common.

Referral for outpatient paediatric assessment is incorrect. Primary nocturnal enuresis in children is common and usually spontaneously resolves, and referral for specialist assessment is not indicated here. If the problem was secondary or associated with a more serious underlying condition, specialist assessment should be considered.

Question:

An elderly lady who presented with weight loss and malabsorption was found to have amyloid of the small bowel. On presentation she was found to have osteomalacia and was hypocalcaemic. Over the past seven days she has received total parenteral nutrition with adequate calcium replacement. Despite this she remained hypocalcaemic. Deficiency of which of the following electrolytes is most likely to account for this process?

A.Magnesium

B.Potassium

C.Sodium

D.Phosphate

E.None of the above

Answer:Magnesium

Explanation:

Patients with malabsorption may develop magnesium deficiency, although her TPN feeds may have contained magnesium it may not have been sufficient to correct her losses. Sodium, phosphate and potassium would not have this effect on serum calcium.

Question:

A 66-year-old man attends his GP surgery for a routine health check. During the consultation, his blood pressure is noted to be 152/86 mmHg. He is asymptomatic and examination is unremarkable. He has no significant past medical history except for mild arthritis of the knee, for which he takes paracetamol.

The blood pressure is repeated and is recorded as 155/82 mmHg.

What should be done next?

A.Ambulatory blood pressure monitoring

B.Commence amlodipine

C.Commence ramipril

D.Recheck in clinic in one week

E.Recheck later today with the nurse

Answer:Ambulatory blood pressure monitoring

Explanation:

Hypertension - NICE now recommend ambulatory blood pressure monitoring to aid diagnosis

Important for meLess important

The correct answer is to arrange ambulatory blood pressure monitoring. Unless the blood pressure is extremely high and requires immediate treatment, NICE now recommends ambulatory or home blood pressure monitoring (ABPM/HBPM), as this provides more reliable readings. In consultation, many patients experience white-coat hypertension and thus have higher-than-normal blood pressure readings. ABPM or HBPM avoids this by allowing the patient's blood pressure to be checked at home, away from the healthcare setting.

Commencing amlodipine is inappropriate - NICE guidelines now recommend confirming a diagnosis of hypertension with ABPM/HBPM first.

Similarly, commencing ramipril would be inappropriate. Furthermore, ramipril would be used in patients under 55 and not of African/Caribbean descent - if this patient were to start treatment now, amlodipine would be more appropriate.

Arranging for the patient to come back in one week for a recheck is not ideal - the same problem may occur with regards to white-coat hypertension. ABPM would be preferable to this.

Rechecking again now would serve no purpose if the patient were experiencing white-coat hypertension.

Question:

A 34-year-old man presents to the sexual health clinic after unprotected intercourse with a female partner. The encounter happened four weeks ago and today he is complaining of coryzal symptoms accompanied by myalgia. He has a past medical history of asthma, controlled with salbutamol. The doctor counsels him on HIV testing, to which he agrees.

What is the most appropriate option regarding his management?

A.Offer post-exposure prophylaxis

B.Offer two nucleoside reverse transcriptase inhibitors (NRTI) and a non-nucleoside reverse transcriptase inhibitor (NNRTI)

C.Order HIV p24 antigen and HIV antibody tests

D.Order a p24 antigen HIV test

E.Order an HIV antibody test

Answer:Order HIV p24 antigen and HIV antibody tests

Explanation:

Combination tests (HIV p24 antigen and HIV antibody) are now standard for the diagnosis and screening of HIV

Important for meLess important

The correct answer is to order HIV p24 antigen and HIV antibody tests. This patient is presenting with the classical symptoms of HIV seroconversion (fever, malaise, myalgia). He had unprotected intercourse 4 weeks ago. Combination tests (HIV p24 antigen and HIV antibody) are now standard for the diagnosis and screening of HIV. HIV p24 antigen tests tend to turn out positive between 1 and 4 weeks post-exposure, whilst HIV antibody tests turn out positive between 4 weeks and 3 months post-exposure. When a patient at risk tests positive, the guidelines suggest repeating the test to confirm the diagnosis before starting any treatment.

Offering post-exposure prophylaxis is incorrect. Patients who decide to follow post-exposure prophylaxis should take a combination of oral antiretrovirals for 4 weeks. This prophylaxis can be administered up to 72 hours post-exposure. This patient had unprotected intercourse 3 weeks ago, making offering post-exposure prophylaxis inappropriate.

Offering two nucleoside reverse transcriptase inhibitors (NRTI) and a non-nucleoside reverse transcriptase inhibitor (NNRTI) is incorrect. This is one of the treatment options for patients who have tested positive twice. Since this patient has not tested positive yet it is not appropriate to start the treatment now.

To order a p24 antigen HIV test alone is inappropriate. The guidelines suggest that combination tests (HIV p24 antigen and HIV antibody) are now standard for the diagnosis and screening of HIV. HIV p24 antigen tests tend to turn out positive between 1 and 4 weeks post-exposure, whilst HIV antibody tests turn out positive between 4 weeks and 3 months post-exposure. Hence, a combination test should be ordered.

To order an HIV antibody test alone is inappropriate. The guidelines suggest that combination tests (HIV p24 antigen and HIV antibody) are now standard for the diagnosis and screening of HIV. Hence, a combination test should be ordered.

Question:

A 56-year-old man is admitted to the emergency department with an infective exacerbation of COPD.

The patient has a background of atrial fibrillation, anti-coagulated with warfarin, and COPD.

He has previously been treated in the community with steroids and antibiotics by his GP, one week before admission.

The clerking doctor performs some blood tests, some of which are found below:

International normalised ratio (INR) 6.9 (<1.5)

Prothrombin time (PT) 20 secs (10-14 secs)

Activated partial thromboplastin time (APTT) 21 secs (25-35 secs)

He has no current symptoms or signs of bleeding.

What is the next most appropriate step in the management of this patient?

A.Give a STAT dose of IV vitamin K and prothrombin complex concentrate

B.Give a STAT dose of IV vitamin K and restart when INR <5.0

C.Give a STAT dose of oral vitamin K and continue current warfarin dose

D.Give a STAT dose of oral vitamin K and withhold warfarin for 1-2 days

E.Withhold warfarin for 1-2 days and restart at a lower dose

Answer:Withhold warfarin for 1-2 days and restart at a lower dose

Explanation:

INR 5.0-8.0 (no bleeding) - withhold 1 or 2 doses of warfarin, reduce subsequent maintenance dose

Important for meLess important

The correct answer is to withhold warfarin for 1-2 days and restart at a lower dose.

This is because the patient has an INR between 5.0-8.0 and NO bleeding, therefore you need to withhold the warfarin for 1-2 days and then reduce the maintenance dose until the INR is within the therapeutic range.

It is important to note in this history, and in any patient with a prolonged INR on warfarin the recent drug history. This patient has recently been treated for an infective exacerbation of COPD with an antibiotic - clarithromycin is commonly used for this, which can inhibit CYP40 liver enzymes responsible for metabolising warfarin, causing raised INR.

Give a STAT dose of IV vitamin K and prothrombin complex concentrate is incorrect, this would be the management of the patient who had an INR >8.0 and major bleeding.

Give a STAT dose of IV vitamin K and restart when INR <5.0 is incorrect, it would be the correct management if the patient has an INR of >8.0 and minor bleeding.

Give a STAT dose of oral vitamin K and continue current warfarin dose is incorrect. This is incorrect management for any raised INR as if the INR was raised enough to use vitamin K, this suggests the patient is currently on too high a dose for the current clinical situation and the warfarin would need to be withheld or have the dose adjusted.

Give a STAT dose of oral vitamin K and withhold warfarin for 1-2 days is incorrect. You would use this management if the patient had an INR of >8.0 and no bleeding.

Question:

Which one of the following statements regarding bronchiolitis is true?

A.A trial of bronchodilators should be given

B.Oral corticosteroids have been shown to reduce the duration of the illness

C.Peak incidence is 3-6 months of age

D.Most common in autumn

E.Infantile eczema is a risk factor

Answer:Peak incidence is 3-6 months of age

Explanation:

Question:

You are asked to organise a tutorial on child protection for medical students attached to the surgery. When discussing patterns of behaviour which may point towards child abuse, which one of the following is least likely to be relevant?

A.Frequent attendances to see the GP

B.Late presentation following an injury

C.History of child abuse in the family

D.Torn frenulum

E.Poor weight gain

Answer:Frequent attendances to see the GP

Explanation:

Frequent attendance to the A&E department, rather than GP, may point towards child abuse as parents presume they will see a different doctor each time, making it less likely suspicions will be aroused

Question:

After sending several invitations, 62-year-old Mr Bentley attends the surgery for his medication review. He has not been into the surgery for nearly two years. He explains he works away during the week so finds it difficult to attend appointments. His medications are allopurinol 200mg, candesartan 8mg, indapamide 2.5mg, omeprazole 20mg and salbutamol inhaler as required.

His blood pressure, which you repeat a couple of times, is 166/95mmHg. He says he does remember to take his medications nearly every day, so you suggest starting him on another medication to lower his blood pressure.

Which class of antihypertensive medication should be added next, according to NICE?

A.Angiotensin-converting enzyme inhibitor

B.Beta-blocker

C.Calcium channel blocker

D.Loop diuretic

E.Spironolactone

Answer:Calcium channel blocker

Explanation:

Poorly controlled hypertension, already taking an ACE inhibitor and a thiazide diuretic - add a calcium channel blocker

Important for meLess important

Angiotensin-converting enzyme inhibitor. Incorrect as the patient is already on candesartan - an angiotensin II receptor blocker - which should not be combined with an angiotensin-converting enzyme inhibitor.

Beta-blocker. This is a 4th-line option but this patient is on a salbutamol inhaler, suggesting he may have asthma, so it might be contraindicated.

Calcium channel blocker. Correct, this patient is already on candesartan (an angiotensin II receptor blocker) and indapamide (a thiazide-like diuretic), so the third-line treatment is a calcium channel blocker, such as amlodipine.

Loop diuretic. Incorrect, loop diuretics (for example furosemide) are not a routine treatment for hypertension.

Spironolactone. This is a possible 4th-line option, as long as the potassium level is not greater than 4.5mmol/L.

Question:

A 69-year-old man presents with a 2-year history of progressive short-term memory loss, intermittent confusion and wandering around the house at night. His family report that he has been seeing objects around the house. His chest is clear and his urine dip is unremarkable. In the last few months, he has developed a unilateral resting tremor that resolves with purposeful movement.

What is the most likely diagnosis?

A.Alzheimer’s dementia

B.Frontotemporal dementia

C.Lewy body dementia

D.Parkinson's disease

E.Vascular dementia

Answer:Lewy body dementia

Explanation:

Visual hallucinations with dementia = Lewy body dementia

Important for meLess important

Lewy body dementia is correct. This patient presents with the core clinical features of fluctuating cognition (in the absence of an infective source), recurrent visual hallucinations, REM sleep behaviour disorder and symptoms of parkinsonism (rest tremor). Memory impairment may not be apparent in the early stages. The main pathological features of Lewy body dementia are cortical and subcortical Lewy bodies. There is increasing recognition of an overlap between Lewy body dementia and the dementia associated with Parkinson’s disease. However, Lewy body dementia is diagnosed when the cognitive symptoms predate the emergence of motor parkinsonism by a year or more.

Alzheimer’s dementia (AD) is incorrect. AD is the most common cause of neurodegenerative cognitive impairment, and presents with progressive loss of episodic memory — this may include memory loss for recent events, repeated questioning, and difficulty learning new information. It may be associated with difficulty in executive function, nominal dysphasia, aphasia, apraxia, and agnosia. The presence of fluctuating confusion, Parkinsonism and visual hallucinations would not be expected.

Frontotemporal dementia (FTD) is incorrect. FTD is increasingly recognised as a common cause of dementia, particularly in younger people. it is characterised by an insidious onset of personality change and behavioural disturbance (such as apathy or social/sexual disinhibition). A significant proportion of people, particularly with behavioural presentations, have a family history.

Parkinson's disease (PD) is incorrect. As noted above, there is increasing recognition of an overlap between Lewy body dementia and the dementia associated with Parkinson’s disease. However, NICE guidelines note that Parkinson's disease dementia is diagnosed when motor parkinsonism occurs prior to, or within 1 year of, the development of cognitive problems. In this case, cognitive symptoms predate motor symptoms by 2 years, and there is prominent fluctuating cognition and visual hallucinations, making a diagnosis of Lewy body dementia more appropriate.

Vascular dementia is incorrect. Vascular dementia is the second most common type of dementia — it occurs as a result of reduced blood supply to the brain. It can be caused by a wide variety of cerebrovascular disorders, including large or multiple small infarcts, cerebral amyloid angiopathy, and cerebral autosomal dominant arteriopathy with subcortical infarcts and leukoencephalopathy. Clinical features include a stepwise increase in the severity of cognitive symptoms, or an insidious onset of gait and attention problems together with changes in personality. Focal neurological signs (such as hemiparesis or visual field defects) may be present.

Question:

A 25-year-old woman presents to her GP to discuss contraception.

She delivered her first baby 2 weeks ago by caesarean section and is planning to continue exclusive breastfeeding. Prior to pregnancy, she was taking the combined contraceptive pill. She has suffered from heavy periods in the past but has not yet had a bleed since the birth.

During the consultation, she becomes tearful and states she does not want to take hormonal contraception, as she experienced side effects in the past.

Her blood pressure is 125/78 mmHg and her BMI is 24 kg/m².

What is the appropriate choice of contraception for this patient?

A.Combined oral contraceptive pill

B.Contraceptive patch

C.Copper intra-uterine device

D.Intra-uterine system

E.No contraception required at present

Answer:No contraception required at present

Explanation:

Lactational amenorrhoea is a reliable method of contraception as long as amenorrhoeic, baby <6 months, and breastfeeding exclusively

Important for meLess important

The correct answer is no contraception required. This patient is currently breastfeeding exclusively, not having any periods, and is < 6 months postpartum. Therefore she fits the criteria to use lactational amenorrhoea as a reliable method of contraception.

Combined oral contraceptive pill is the wrong answer. The COCP contains both oestrogen and progesterone. This method is contraindicated in this patient as she is <6 weeks post-partum and currently breastfeeding. She has also expressed that she does not wish to use hormonal contraception at present.

Contraceptive patch is the wrong answer. The contraceptive patch contains both oestrogen and progesterone. This method is contraindicated in this patient as she is <6 weeks post-partum and currently breastfeeding. She has also expressed that she does not wish to use hormonal contraception at present.

Copper intra-uterine device is the wrong answer as this device can only be inserted either <48 hours after birth or over 4 weeks post-partum. This would also not be a good contraceptive option for this patient, due to her previous history of menorrhagia, which can be worsened by a copper IUD.

Intra-uterine system is the wrong answer as this device can only be inserted either <48 hours after birth or over 4 weeks post-partum. She has also expressed that she does not wish to use hormonal contraception at present.

Question:

A 72-year-old lady presents to her general practitioner for a wound check, 1 week post total knee arthroplasty (TKA). She is recovering well from the surgery and is starting to mobilise more frequently, however she reports that she is having difficulty dorsiflexing her foot when walking.

Given the history, what structure is most likely to have been damaged during the TKA operation?

A.Sciatic nerve

B.Common peroneal nerve

C.Tibialis anterior

D.Tibialis posterior

E.Extensor hallucis longus

Answer:Common peroneal nerve

Explanation:

The nerve most likely to be injured during knee arthroplasty is the common peroneal nerve

Important for meLess important

The common peroneal nerve is one of the terminal branches of the sciatic nerve, beginning at the top of the popliteal fossa. It then follows the medial border of the biceps femoris, before wrapping around the neck of the fibula. Its anatomical location means that it is possible for it to be damaged during procedures that involve the knee, such as joint replacements and ligament repairs. Although damage to both the sciatic nerve (1) and the common peroneal nerve (2) can lead to foot drop, given this patient’s history of a total knee replacement, the common peroneal nerve is much more likely to be the cause of her complaint.

Tibialis anterior (3) and tibialis posterior (4) are both muscles that control the movement of the foot. Tibialis anterior is the muscle that acts to dorsiflex and invert the foot and is innervated by the deep peroneal nerve, which is a branch of the common peroneal nerve. Whilst it controls the action that the patient is having difficulty with, the common peroneal nerve is much more likely to have been damaged in the surgery than tibialis anterior, and therefore (3) is not the correct answer. Tibialis posterior is responsible for the plantar flexion and eversion of the foot, which are not the movements involved in this presentation.

Extensor hallucis longus (5) controls extension of the big toe and dorsiflexion of the foot. It arises distal to the knee joint and therefore is unlikely to have been damaged during the operation

Question:

A 74-year-old male presents to his ophthalmologist for review - his sister has been diagnosed with primary open-angle glaucoma and he is concerned that this may also be the cause of his worsening eyesight. He has a past medical history of hypertension, diabetes mellitus, and prostate cancer.

Which, of the potential findings, would support a diagnosis of this condition?

A.Astigmatism

B.Central scotoma

C.Hypermetropia

D.Myopia

E.Red desaturation

Answer:Myopia

Explanation:

Acute angle closure glaucoma is associated with hypermetropia, where as primary open-angle glaucoma is associated with myopia

Important for meLess important

Primary open-angle glaucoma is characteristically associated with myopia (near-sightedness, where far away objects look blurred).

Acute angle closure glaucoma is associated with hypermetropia (far-sightedness, where near objects look blurred).

Astigmatism is a condition in which the cornea is shaped in a 'rugby ball' shape (rather than more spherically). This changes the focal point of light on the back of the eye and may be associated with either myopia or hypermetropia.

A central scotoma is a point of blurred vision in the centre of the visual field - this may be seen in multiple sclerosis, optic nerve glioma, or alcohol induced ophthalmic disease. Peripheral or 'off centre' scotoma are more common in glaucoma.

Red desaturation is seen in optic neuritis.

Question:

A 71 year old woman has a 7 day history of vomiting and diarrhoea.

Bloods:

Na+ 143 mmol/l

K+ 5.7 mmol/l

Urea 13 mmol/l

Creatinine 325 mmol/l

Renal function was noted to be normal on routine blood tests one month ago. Which of the following is most consistent with a diagnosis of acute tubular necrosis?

A.Low urinary sodium

B.Postural drop of >20 mmHg

C.Hydronephrosis on renal ultrasound

D.Raised urinary osmolality

E.Raised urinary sodium

Answer:Raised urinary sodium

Explanation:

This patient has acute kidney injury. The causes can be divided as follows:

Pre-renal:

Caused by inadequate renal perfusion e.g. dehydration, haemorrhage, heart failure, sepsis

Kidneys act to concentrate urine and retain sodium - urine osmolality high, urine sodium low

Renal:

Most common = acute tubular necrosis

Damage to tubular cells due to prolonged ischaemia or toxins

Kidneys can no longer concentrate urine or retain sodium - urine osmolality low, urine sodium high

Rarer causes = acute glomerulonephritis, acute interstitial nephritis

Post-renal:

Obstruction of urinary tract

Usually identified with hydronephrosis on renal ultrasound

Question:

A 65-year-old woman is referred to ambulatory care following an incidental finding of hyponatraemia during a routine GP health check. She appears euvolemic, is not confused and has no symptoms of headache, nausea and vomiting or lethargy. She has a past medical history of atrial fibrillation, hip osteoarthritis and irritable bowel syndrome. Her current medications are naproxen, omeprazole, apixaban, bisoprolol and loperamide. She does not drink and has never smoked.

Na+ 129 mmol/L (135 - 145)

K+ 3.9 mmol/L (3.5 - 5.0)

Bicarbonate 25 mmol/L (22 - 29)

Urea 5.2 mmol/L (2.0 - 7.0)

Creatinine 98 µmol/L (55 - 120)

Serum osmolality 251 mOsm/kg (275 - 300)

Urinary sodium 38 mmol/L

Urinary osmolality 472 mOsm/kg (50-1200)

What is the most likely cause of her hyponatraemia?

A.Loperamide

B.Bisoprolol

C.Omeprazole

D.Apixaban

E.Naproxen

Answer:Omeprazole

Explanation:

PPIs can cause hyponatraemia

Important for meLess important

High urinary sodium and osmolality in combination with clinical euvolaemia is suggestive of the syndrome of inappropriate antidiuretic hormone (SIADH). SIADH causes hyponatraemia through increasing water absorption at the distal convoluted tubule and collecting duct. This causes a dilutional effect and results in hyponatraemia.

Of the drugs mentioned, omeprazole, a proton-pump inhibitor (PPI), is the most likely to cause hyponatraemia through SIADH.

Loperamide, a mu-receptor agonist anti-diarrhoeal agent, is not associated with hyponatraemia. More common side effects include dry mouth, constipation and dizziness.

Bisoprolol, a beta-blocker, is not associated with hyponatraemia. More common side effects include bronchospasm, cold peripheries and fatigue.

Apixaban, a direct oral anticoagulant, is not associated with hyponatraemia. More common side effects include increased bleeding risk and nausea.

Naproxen, a non-steroidal anti-inflammatory drug (NSAID), is not associated with hyponatraemia. More common side effects include gastritis and peptic ulceration.

Question:

An overweight pregnant women is brought to the Emergency department with nausea, vomiting and lethargy. She is 36 weeks pregnant and this is her first pregnancy. On examination she is clinically jaundiced and has a temperature of 37.7ºC. Her blood pressure and heart rate is normal.

Her blood tests are as follows:

Bilirubin 80 µmol/l

ALP 240 u/l

ALT 550 u/l

AST 430 u/l

γGT 30 u/l

INR 1.8

Hb 110 g/l

Platelets 331 \* 109/l

WBC 12.5 \* 109/l

Acute viral hepatitis screen is negative. Urgent US doppler liver demonstrates steatosis with patent hepatic and portal vessels. What is the most likely diagnosis?

A.HELLP syndrome

B.Cholestasis of pregnancy

C.Acute fatty liver of pregnancy

D.Pre-eclampsia

E.Viral hepatitis

Answer:Acute fatty liver of pregnancy

Explanation:

The most likely diagnosis is acute fatty liver of pregnancy as demonstrated by jaundice, mild pyrexia, hepatitic LFTs, raised WBC, coagulopathy and steatosis on imaging. Clinically, acute fatty liver of pregnancy has predominantly non-specific symptoms (e.g. malaise, fatigue, nausea) whereas cholestasis of pregnancy is characterised by severe pruritis. With a normal haemoglobin, platelet count, and viral screen, the diagnosis of HELLP syndrome or viral hepatitis is unlikely. Finally, pre-eclampsia is characterised by hypertension and proteinuria.

Remember, serum ALP can be raised in pregnancy due to placental ALP.

Question:

A 24-year-old female attends the sexual health clinic complaining of new discharge, She says that this is white in colour and on further questioning says she feels it has an unpleasant odour.

She has had one sexual partner for the past 12 months and uses barrier contraception as well as having a Mirena coil in-situ.

A swab is taken for wet mount microscopy - clue cells are visualised.

Given the most likely diagnosis, which of the following features would be useful for diagnosis?

A.'Strawberry cervix' seen on examination

B.Change in colour of sample upon adding alkali

C.Presence of itching

D.Presence of lactobacillus on culture

E.Vaginal pH >4.5

Answer:Vaginal pH >4.5

Explanation:

Bacterial vaginosis: Vaginal pH > 4.5

Important for meLess important

This history is suggestive of a diagnosis of bacterial vaginosis (BV) and this is further implied by the presence of clue cells on wet mount microscopy. In bacterial vaginosis, the pH of the vaginal fluid is elevated as usual lactobacilli colonisation of the vagina is replaced by many anaerobic and other bacteria. Amstel's criteria state that 3 out of 4 of the following should be present for a diagnosis of BV:

Thin, white, homogeneous discharge.

Vaginal fluid pH >4.5.

Clue cells on microscopy of wet mount.

Release of a fishy odour on adding alkali (potassium hydroxide).

'Strawberry cervix' is not associated with bacterial vaginosis and is instead usually seen with trichomoniasis infection.

The 'whiff test' describes a situation where an unpleasant odour is released when potassium hydroxide is added to a sample of vaginal fluid - colour change is not correct.

British Association for Sexual Health and HIV (BASHH) state that bacterial vaginosis is not associated with soreness, itching, or irritation, and therefore the presence of an itch would not be helpful in diagnosing BV.

The presence of lactobacillus on culture is not correct, as Lactobacillus species are the dominant bacteria in healthy vaginal flora. In BV, organisms such as Gardnerella or Mobiluncus morphotypes are implicated, and these are included in other diagnostic criteria such as the Hay/Ison criteria.

Question:

You are reviewing a 9-month-old child with suspected bronchiolitis. Which one of the following features should make you consider other possible diagnoses?

A.Fine inspiratory crackles

B.Rhinitis

C.Feeding difficulties

D.Temperature of 39.7ºC

E.Expiratory wheeze

Answer:Temperature of 39.7ºC

Explanation:

A low-grade fever is typical in bronchiolitis. NICE state the following:

Consider a diagnosis of pneumonia if the child has:

high fever (over 39°C) and/or

persistently focal crackles.

Question:

Which one of the following drugs is not a cause of galactorrhoea?

A.Metoclopramide

B.Bromocriptine

C.Chlorpromazine

D.Haloperidol

E.Domperidone

Answer:Bromocriptine

Explanation:

Bromocriptine is a treatment for galactorrhoea, rather than a cause

Important for meLess important

Question:

A 46-year-old man presents to the emergency department complaining of 3 days of watery diarrhoea which is occasionally bloody. On further questioning, he reveals cramping abdominal pain over the same period. He has dry mucous membranes and a prolonged capillary refill. Five days ago, he was started on a new medication by his GP.

What medication is most likely to cause this presentation?

A.Amoxicillin

B.Clindamycin

C.Diclofenac

D.Metronidazole

E.Vancomycin

Answer:Clindamycin

Explanation:

Clindamycin treatment is associated with a high risk of C. difficile

Important for meLess important

The correct answer is clindamycin. The patient in this question is presenting with the classical signs of Clostridium difficile (C. diff) infection. Commonly patients with C. difficile complain of watery (occasionally bloody) diarrhoea, cramping abdominal pain, and features of volume depletion and sepsis in more severe cases. C. difficile infection is most commonly caused by antibiotic therapy. Classically clindamycin is most closely associated with the development of C. difficile.

Amoxicillin is incorrect. This patient is presenting with C. difficile infection. Amoxicillin can lead to side effects of diarrhoea and can cause C. difficile colonisation in the GI tract. However, it is not the most common antibiotic to do this. Classically C. difficile infection is a side effect of clindamycin or 3rd generation cephalosporins.

Diclofenac is incorrect. The patient is presenting with C. difficile infection, which is not a commonly recognised side effect of diclofenac treatment. Diclofenac, as well as other NSAIDs, have a risk of peptic ulceration and bleeding instead of infection. Diarrhoea caused by NSAIDs typically isn't bloody and would not continue for three days.

Metronidazole is incorrect. This patient is presenting with C. difficile infection. Whilst all antibiotics can theoretically lead to C. difficile infection, it is most classically seen as a side effect of clindamycin or 3rd generation cephalosporins.

Vancomycin is incorrect. This patient is presenting with C. difficile infection. Whilst all antibiotics can theoretically lead to C. difficile infection, it is most classically seen as a side effect of clindamycin or 3rd generation cephalosporins. Vancomycin is a glycopeptide antibiotic and is not classically associated with C. difficile infection.

Question:

A 28-year-old man is a new patient at your surgery and attends for an initial visit. He has been in good health and has not had any hospitalisations. With regards to his family history. he reports that his father died of sudden cardiac death at age 38. A post-mortem examination revealed that his cause of death was hypertrophic cardiomyopathy. What is the probability that your patient inherited the same condition?

A.25%

B.33%

C.50%

D.66%

E.75%

Answer:50%

Explanation:

HOCM has an autosomal dominant inheritance pattern

Important for meLess important

Hypertrophic cardiomyopathy can be inherited in an autosomal dominant pattern. As one parent was affected, there is a 50 percent chance of passing the mutated HOCM gene to their child.

Question:

A 66-year-old woman arrived at the emergency department complaining of abdominal pain, bloating and diarrhoea over four days. She was recently discharged from the hospital after being treated with a prolonged course of various antibiotics for a severe lower respiratory tract infection.

Upon physical examination, there were signs of mild dehydration and her abdomen was distended with tenderness on palpation in the left lower quadrant without rebound tenderness.

She was treated with 10-days of oral vancomycin for this but her symptoms failed to significantly improve.

What treatment would be next in line?

A.Intravenous gentamicin

B.Intravenous vancomycin

C.Oral fidaxomicin

D.Oral metronidazole

E.Oral rifaximin

Answer:Oral fidaxomicin

Explanation:

If C. difficile does not respond to first-line vancomycin , oral fidaxomicin should be used next, except in life-threatening infections

Important for meLess important

Oral fidaxomicin is considered in Clostridium difficile cases not responding to oral vancomycin. Therefore this answer is correct as it is second-line. Oral vancomycin remains the first-line antibiotic for the first episode of mild, moderate or severe Clostridium difficile infection.

Intravenous vancomycin is not indicated for Clostridium difficile associated diarrhoea and therefore this answer is incorrect. Vancomycin is not secreted into the bowel; therefore, intravenous administration would not be effective.

Oral rifaximin is an agent which has been shown to successfully treat patients with mild to moderate infection who failed metronidazole treatment. It is less damaging to intestinal flora than other drugs. The answer is incorrect here as it is not the first line.

Intravenous gentamicin is a very safe antibiotic for use in patients with Clostridium difficile infection but not for its treatment. The reason for that is very clear given that gentamicin does not enter the colonic lumen when it is given intravenously, making the answer incorrect here.

Oral metronidazole is incorrect as it is typically given intravenously when first and second-line antibiotics have proven to be ineffective in treating Clostridium difficile infection.

Question:

A 62-year-old man presents to his general practitioner (GP) with symptoms of exertional breathlessness, wheeze and cough. He has a 30 pack-year smoking history.

As part of the patient's work-up, spirometry is requested:

FEV1/FVC ratio 0.61

Given the likely diagnosis, which of the following would be an appropriate first-line treatment?

A.Ipratropium

B.Formoterol

C.Salmeterol

D.Tiotropium

E.Beclometasone

Answer:Ipratropium

Explanation:

A SABA or SAMA is the first-line pharmacological treatment of COPD

Important for meLess important

This man is likely suffering from chronic obstructive pulmonary disease (COPD), given his age, smoking history and obstructive pattern on spirometry. The first-line management for COPD is an inhaled short-acting beta2 agonist (e.g. salbutamol) or short-acting muscarinic antagonist (e.g. ipratropium).

Formoterol and salmeterol are examples of long-acting beta2 agonists, which are second-line in the management of COPD.

Tiotropium is a long-acting muscarinic antagonist and is used as a second-line treatment for COPD (alongside a LABA) in patients with no features of asthma/steroid responsiveness.

Beclometasone is an inhaled corticosteroid, and is used as a second-line treatment for COPD (alongside a LABA) in patients with features of asthma/steroid responsiveness.

Question:

A 48-year-old female is admitted with upper abdominal discomfort which started 30 minutes ago. Other than this, she feels generally well. Her past medical history includes type 2 diabetes mellitus and atrial fibrillation for which she is taking apixaban, bisoprolol, and metformin.

On examination, her pulse is regular with a heart rate of 85 beats per minute. Her cardiac, respiratory, and abdominal examinations are unremarkable. Her oxygen saturations are 96% on room air. You send a set of routine bloods and perform an ECG.

© Image used on license from Dr Smith, University of Minnesota

You note that the nearest cardiac unit that delivers fibrinolysis or percutaneous coronary interventions (PCI) is reachable within 1 hour.

Which of the following is the best course of treatment?

A.Give aspirin, clopidogrel, nitrates, and analgesia, and arrange transfer for urgent PCI

B.Give aspirin, nitrates, and analgesia, and arrange transfer for urgent fibrinolysis

C.Give aspirin, nitrates, oxygen, and analgesia, and arrange transfer for urgent PCI

D.Give aspirin, prasugrel, nitrates, and analgesia, and arrange transfer for urgent PCI

E.Give aspirin, ticagrelor, nitrates, and analgesia, and arrange transfer for urgent fibrinolysis

Answer:Give aspirin, clopidogrel, nitrates, and analgesia, and arrange transfer for urgent PCI

Explanation:

This patient has presented with a short history of abdominal pain. An ECG on admission demonstrates ST-elevation in leads V2-V4, therefore this is confirmatory for an ST-elevated myocardial infarction (STEMI). Although this patient does not present with classical central chest pain, she is a known diabetic and is therefore much more likely to be suffering from a 'silent' infarction. She is also a female which makes her at higher risk of these silent infarcts.

When you are treating someone with a STEMI you should always give aspirin and nitrates in the first instance, unless in the rare event that there are specific contraindications to these medications in such a patient. Analgesia should be administered according to the pain that they are in; for example, don't prescribe morphine for someone who has very mild pain, consider something less intense instead, such as paracetamol.

Upon diagnosing a STEMI, it is extremely important to decide if the patient is eligible for PCI or fibrinolysis. PCI is the preferred treatment and should be offered if the patient's presentation is within 12 hours of the onset of symptoms and the primary PCI can be delivered within 120 minutes of the time when fibrinolysis could have been given. Given that the patient, in this case, can receive PCI in 60 minutes, and that they have presented within an hour of symptoms, they should have a transfer arranged for urgent PCI.

Patients should all be offered dual antiplatelet therapy prior to PCI in the form of aspirin and one other anticoagulant. Prasugrel is offered if the patient is not taking an oral anticoagulant, whereas clopidogrel is offered if they are. In this case, the patient is already taking apixaban, therefore aspirin and clopidogrel should be given. The correct best course of treatment is therefore aspirin, clopidogrel, nitrates, and analgesia, and arrange a transfer for urgent PCI.

If someone does not meet the criteria for PCI then fibrinolysis should be offered. However, in this case, the patient is eligible for PCI given the timeframe of symptoms, therefore both the options that contain fibrinolysis are incorrect.

Oxygen should only be given to those with oxygen saturations outside the normal target ranges provided by the British Thoracic Society. In those who are not hypercapnic, target oxygen saturations are 94-98%. The patient in this situation has saturations of 96% on air, therefore they do not require oxygen. Evidence suggests that unnecessary oxygen therapy in myocardial infarctions can increase the size of the infarct, hence it is not given to everyone who presents with ACS.

Question:

A 3-month-old presents to the emergency department and is diagnosed with a urinary tract infection (UTI). She responds well to antibiotic treatment within the following 48 hours. An ultrasound would need to be arranged depending on likelihood that this episode is a typical or atypical UTI. Which of the following is most likely an indication of an atypical UTI?

A.Failure of complete recovery in 24 hours

B.Abdominal pain

C.Poor urine flow

D.Raised white cell count

E.Identified E. coli organism

Answer:Poor urine flow

Explanation:

An ultrasound scan should be organised during the acute admission when there are signs of an atypical UTI in infants under 6 months.

Features of atypical UTI:

Seriously ill

Poor urine flow

Abdominal or bladder mass

Raised creatinine

Septicaemia

Failure to respond to treatment with suitable antibiotics within 48 hours

Infection with non-E. coli organisms.

Raised white blood cells on their own aren't enough to equate it with septicaemia, and abdominal pain is a general feature of UTI, but not necessarily an atypical UTI.

Source: https:www.nice.org.uk/guidance/cg54/chapter/1-Guidance

Question:

You are asked to review a 24-year-old man who has been urgently referred to the Community Mental Health Team. He has recently quit his job to work on 'an exciting project' which he claims will cure world hunger. He has also not been eating or sleeping as he 'does not have time to waste on such frivolities'. On examination, the patient seems agitated and lacks insight into their condition. The patient has a past medical history of depression, for which he currently takes an antidepressant.

What is the most appropriate next step in the management of this patient?

A.Electroconvulsive therapy

B.Start antipsychotic and continue antidepressant

C.Start antipsychotic and stop antidepressant

D.Start lithium and continue antidepressant

E.Start lithium and stop antidepressant

Answer:Start antipsychotic and stop antidepressant

Explanation:

Management of mania/hypomania in patients taking antidepressants: consider stopping the antidepressant and start antipsychotic therapy

Important for meLess important

Start antipsychotic and stop antidepressant is the correct answer. This patient has presented with delusions of grandeur and hyperactivity, suggesting they are suffering an episode of mania. Acute management of manic episodes involves the use of a rapidly acting antipsychotic (or a benzodiazepine) and discontinuing antidepressants.

Electroconvulsive therapy (ECT) is not the correct answer. In the treatment of mania, ECT is reserved for severe cases or those that do not respond to medical management.

Start antipsychotic and continue antidepressant is not the correct answer. While it is appropriate to start an antipsychotic in those with mania, antidepressants should be discontinued.

Start lithium and continue antidepressant and start lithium and stop antidepressant are also not the correct answers. Lithium is a mood stabiliser that is commonly used to prevent the recurrence of mania in bipolar disorder. While it can be used to treat episodes of mania, it is typically not used in those who are agitated or lack insight - in these situations a rapidly acting antipsychotic or benzodiazepine may be used.

Question:

A 78-year-old man is admitted to a medical ward with community-acquired pneumonia (CAP). Blood tests during the third day as an inpatient finds he has developed an acute kidney injury (AKI), with eGFR dropping from 58 to 26ml/min/1.73 m2 and creatinine rising from 122 to 196umol/L.

Which of the following of his regular medications should be stopped?

A.Atorvastatin

B.Bisoprolol

C.Finasteride

D.Ramipril

E.Tamsulosin

Answer:Ramipril

Explanation:

ACE inhibitors should be stopped in AKI as may worsen renal function

Important for meLess important

An acute kidney injury (AKI) refers to a rapid decrease in renal function and is often defined as a rise from baseline serum creatinine of >26umol/L in 48 hours, or a >1.5 fold increase in serum creatinine within 1 week. A 25% or greater decline in eGFR within 7 days is also used to define AKI in children and young people. AKI is generally associated with low urine outputs of < 0.5 ml/kg/hour.

Causes of AKI can be categorised as either prerenal (for example hypovolaemia), renal (examples include nephropathies, glomerulonephritis, and nephrotoxic drugs), and postrenal (or obstructive) causes such as renal calculi and prostatic enlargement. The elderly are especially vulnerable, and the patient in this question has likely developed his AKI from decreased renal blood flow (i.e. a prerenal cause) that often results from severe infections.

Medications are a common cause of AKI. Ramipril is an angiotensin-converting enzyme (ACE) inhibitor, which lowers blood pressure by preventing the conversion of angiotensin I to angiotensin II, a peptide hormone responsible for vasoconstriction and fluid retention through stimulating vasopressin release. Although overall reno-protective, ACE inhibitors should be used in caution in patients with declining renal function.

If a patient suffers from an acute kidney injury (AKI), ACE inhibitors should be stopped as they can worsen renal function and provoke hyperkalaemia. Other drugs to temporarily discontinue include angiotensin II receptor antagonists (A2RBs), NSAIDs (except low-dose aspirin), diuretics, and aminoglycosides. Although less likely to directly worsen renal function, metformin and lithium should also be stopped in the event of an AKI. This is due to an increased risk of drug toxicity when excretion by the kidneys is impaired.

Atorvastatin is a statin, which lowers cholesterol by inhibiting HMG-CoA reductase. Atorvastatin can be safely prescribed in renal disease patients for the primary and secondary prevention of cardiovascular events.

Bisoprolol is a β-blocker that is selective for heart β1 adrenoreceptors. It has negative inotropic effects and is commonly prescribed for hypertension, angina, secondary prevention of myocardial infarction, and to improve survival in heart failure. It is not nephrotoxic and can be prescribed in patients with kidney disease.

Finasteride is a 5α-reductase inhibitor and treats benign prostatic hyperplasia (BPH) by blocking dihydrotestosterone synthesis. It can be prescribed for patients with poor renal function. The α1-receptor blocker tamsulosin is another commonly prescribed drug for BPH, improving urinary flow by promoting smooth muscle relaxation at the bladder neck. It is generally safe to take in kidney disease, although should be used with caution in patients with an eGFR of < 10 mL/minute/1.73 m2.

Question:

A 19-year-old female is prescribed a 7 day course of amoxicillin for a lower respiratory tract infection. She is currently taking Cerazette (desogestrel). What is the most appropriate advice regarding contraception?

A.Use condoms for 14 days

B.Use condoms for 21 days

C.Use condoms for 7 days

D.There is no need for extra protections

E.Use condoms for 7 days, only antibiotic course if overlaps with pill free interval

Answer:There is no need for extra protections

Explanation:

Progestogen only pill + antibiotics - no need for extra precautions

Important for meLess important

Question:

A 33-year-old woman presents with weight loss and excessive sweating. her partner reports that she is 'on edge' all the time and during the consultation you notice a fine tremor. Her pulse rate is 96/min. A large, non-tender goitre is noted. Examination of her eyes is unremarkable with no evidence of exophthalmos.

Free T4 26 pmol/l

Free T3 12.2 pmol/l (3.0-7.5)

TSH < 0.05 mu/l

What is the most likely diagnosis?

A.Toxic multinodular goitre

B.Hashimoto's thyroiditis

C.T3-secreting adenoma

D.De Quervain's thyroiditis

E.Graves' disease

Answer:Graves' disease

Explanation:

Graves' disease is the most common cause of thyrotoxicosis

Important for meLess important

Only around 30% of patients with Graves' disease have eye disease so the absence of eye signs does not exclude the diagnosis.

Question:

A 58-year-old man attends his GP with pain in his loin. He states that this has been going on for 6 months, but it has become increasingly worse over the last month. On examination, he is pyrexial and of normal body habitus. There is tenderness over his right loin area with an accompanying palpable mass. A urine dipstick taken shows visibly red urine with ++red blood cells, -nitrites, and -leucocytes.

Given the likely diagnosis, what is the most important risk factor to ask about in this patient's history?

A.Exposure to asbestos

B.Previous infection with schistosomiasis

C.Recent history of trauma

D.Smoking

E.Weight loss

Answer:Smoking

Explanation:

Ongoing loin pain, haematuria, pyrexia of unknown origin → ?renal cell cancer

Important for meLess important

Smoking is the correct answer. This patient likely has a diagnosis of renal cell carcinoma. This is supported by a progressive history of loin pain, a palpable mass, unexplained pyrexia and visible haematuria. The urine dipstick has also ruled out an underlying urinary tract infection. There are various risk factors for renal cell carcinoma but the most common is smoking. Other common risk factors to consider and counsel patients on include obesity, hypertension, current history of chronic kidney disease and viral hepatitis.

Exposure to asbestos is incorrect. This is an important risk factor for lung cancer, and rarely larynx and ovarian cancer. This patient is not presenting with signs suggestive of lung cancer or laryngeal cancer, as these would typically present with a hoarse voice, stridor, cough, haemoptysis, etc. It is important to note that smoking is a common risk factor for lung and laryngeal cancer.

Previous infection with schistosomiasis is incorrect. This should be enquired about in patients presenting with features of bladder cancer. Although bladder cancer is an important differential in this case, this would often present with unexplained visible haematuria with very limited other symptoms. Patients may also typically have a history of smoking or industrial exposure to aromatic hydrocarbons through hairdressing and painting occupations.

Recent history of trauma is incorrect. This is important to exclude in any patient presenting with macroscopic haematuria, however given this patient's progressive history of loin pain, a palpable mass and unexplained pyrexia, this patient most likely has an underlying diagnosis of renal cell carcinoma.

Weight loss is incorrect. Although weight loss is an important feature in the presentation of renal cell carcinoma, it is not a risk factor.

Question:

A 34-year-old kitchen worker presents with a two week history of pain in her right wrist. She has recently emigrated from Ghana and has no past medical history of note. On examination she is tender over the base of her right thumb and also over the radial styloid process. Ulnar deviation of the wrist recreates the pain. What is the most likely diagnosis?

A.Rheumatoid arthritis

B.Osteoarthritis of the carpometacarpal joint

C.De Quervain's tenosynovitis

D.Carpal tunnel syndrome

E.Systemic lupus erythematosus

Answer:De Quervain's tenosynovitis

Explanation:

Pain on the radial side of the wrist/tenderness over the radial styloid process ? De Quervain's tenosynovitis

Important for meLess important

Question:

You are reviewing a 57-year-old man who was diagnosed with type 2 diabetes mellitus around four months ago. At the time of diagnosis his HbA1c was 54 mmol/mol (7.1%). He was started on metformin and the dose was titrated up. At what threshold should you consider adding a second agent?

A.42 mmol/mol (6.0%)

B.45 mmol/mol (6.3%)

C.48 mmol/mol (6.5%)

D.53 mmol/mol (7.0%)

E.58 mmol/mol (7.5%)

Answer:58 mmol/mol (7.5%)

Explanation:

Question:

You are doing a medication review for a 78-year-old patient. In the past year, they had an admission complicated by C. difficile infection. Which of the following common medications found on the patient's repeat prescription is associated with increased risk of C. difficile infection and should potentially be discontinued?

A.Hyoscine butylbromide

B.Omeprazole

C.Ferrous fumarate

D.Aspirin

E.Calcium carbonate

Answer:Omeprazole

Explanation:

PPIs are a risk factor for C. difficile infection

Important for meLess important

There is evidence that acid suppression medication - proton pump inhibitors more so than H2 antagonists - are associated with increased risk of C. difficile infection (CDI). Therefore their use should be reviewed in patients with CDI, or who are at high risk of infection, such as those who have had already had episodes of CDI. Other risk factors for CDI include increasing age, antibiotic use (in particular broad-spectrum antibiotics and multiple antibiotic courses), inflammatory bowel disease, long hospital stays, immunosuppression, and surgery to the GI tract.

Sources:

Department of Health Updated guidance on the management and treatment of Clostridium difficile infection

https://www.gov.uk/government/uploads/system/uploads/attachmentdata/file/321891/Clostridiumdifficilemanagementandtreatment.pdf

NHS Choices

http://www.nhs.uk/Conditions/Clostridium-difficile/Pages/Causes.aspx

Question:

An 84-year-old male presents to the emergency department with ongoing crushing left-sided chest pain radiating to the jaw which started two hours ago. He has a past medical history of familial hypercholesterolemia. You perform an electrocardiogram and serum troponin which confirm an inferior ST-elevated myocardial infarction (STEMI). The nearest primary percutaneous coronary intervention (PPCI) centre is two and a half hours away by ambulance.

What is the most appropriate revascularisation for this patient?

A.Medical therapy only

B.Transfer for urgent PCI

C.Offer urgent fibrinolysis to be performed within 12 hours

D.Offer urgent fibrinolysis to be performed within 24 hours

E.Refer for PCI to be performed within 72 hours

Answer:Offer urgent fibrinolysis to be performed within 12 hours

Explanation:

STEMI management: fibrinolysis should be offered within 12 hours of onset of symptoms if primary PCI cannot be delivered within 120 minutes

Important for meLess important

The correct answer is to offer urgent fibrinolysis and medical therapy.

Patients with acute ST-elevation myocardial infarction (STEMI) should be offered urgent percutaneous coronary intervention (PCI) if they present within 12 hours symptom onset symptoms and primary PCI can be delivered within 120 minutes of the time when fibrinolysis could be given. As PPCI is over 120 minutes away, urgent thrombolysis to be given within 12 hours is the preferred option.

Medical therapy only would be indicated if the patient had contraindications to fibrinolysis, which include uncontrolled hypertension, ischemic stroke, dementia or other intracranial pathology, prolonged cardiopulmonary resuscitation, recent major surgery or internal bleeding, active peptic ulcer or use of anticoagulation, especially in patients with a high INR.

Transfer the patient for urgent PCI is unsuitable as the nearest centre offering this is two and a half hours away.

Offer urgent fibrinolysis to be performed within 24 hours is incorrect as fibrinolysis must be given within 12 hours. Beyond this point, the risks outweigh the potential benefits.

Refer the patient for PCI to be performed within 72 hours of admission is an appropriate strategy for patients with an NSTEMI and an intermediate or higher risk of adverse cardiovascular events (predicted 6-month mortality above 3.0%) by their GRACE (Global Registry of Acute Cardiac Events) score. However, please note PCI should be performed as soon as possible for NSTEMI patients who are clinically unstable.

Question:

A 52-year-old woman presents to the emergency department complaining of a severely sore throat, mouth ulcer, fever and feeling generally unwell. She has a past medical history of rheumatoid arthritis, treated with methotrexate and atrial fibrillation managed with apixaban. She remembers having been recently prescribed a new medication to fight an infection during a recent admission but does not remember the name.

Her blood tests show the following:

Hb 90 g/L (115 - 160)

Platelets 87 \* 109/L (150 - 400)

WBC 1.2 \* 109/L (4.0 - 11.0)

What medication is she likely to have been prescribed?

A.Azithromycin

B.Clarithromycin

C.Co-trimoxazole

D.Flucloxacillin

E.Nitrofurantoin

Answer:Co-trimoxazole

Explanation:

Co-trimoxazole contains trimethoprim and therefore should never be prescribed with methotrexate

Important for meLess important

The correct answer is co-trimoxazole. This patient is presenting with symptoms of bone marrow suppression such as sore throat, mouth ulcer, fever and feeling generally unwell. Additionally, her blood results show anaemia, thrombocytopenia and neutropenia, showing that her bone marrow is being suppressed. This has been caused by the co-prescription of methotrexate, an antimetabolite that inhibits dihydrofolate reductase, and co-trimoxazole, this medication is an antibiotic composed of sulfamethoxazole and trimethoprim. It is classically used to treat Pneumocystis jirovecii pneumonia in HIV-positive patients, but in some trusts can be used to treat hospital-acquired pneumonia. Trimethoprim also inhibits dihydrofolate reductase, and the synergic action of these two drugs can cause severe myelosuppression, as in this case, hence they should never be co-prescribed.

Azithromycin is a macrolide antibiotic which can be useful to manage different infections such as sexually transmitted ones in penicillin-allergic individuals. It does not interact with methotrexate, but it should not be prescribed concurrently with statins as it can increase the risk of myopathy and rhabdomyolysis. Hence, this could not be the cause of the myelosuppression in this patient.

Clarithromycin is a macrolide antibiotic which can be useful to manage multiple infections such as pneumonia in penicillin-allergic individuals. It does not interact with methotrexate, but it should not be prescribed concurrently with statins as it can increase the risk of myopathy and rhabdomyolysis.

Flucloxacillin is a penicillin antibiotic often used to treat infections such as cellulitis. It does not interact with methotrexate, but it can cause cholestasis. Hence, this is not the cause of the myelosuppression in this patient.

Nitrofurantoin is a very commonly used antibiotic to manage urinary tract infections. It does not interact with methotrexate, and it can actually be used as an alternative to trimethoprim for the management of those patients on methotrexate. Hence, this could not be the cause of the myelosuppression in this patient.

Question:

Which of the following types of renal stones are radio-lucent?

A.Triple phosphate stones

B.Cystine stones

C.Calcium phosphate

D.Xanthine stones

E.Calcium oxalate

Answer:Xanthine stones

Explanation:

Renal stones on x-ray

cystine stones: semi-opaque

urate + xanthine stones: radio-lucent

Important for meLess important

Question:

A 20-year-old student drinks around 500 ml of vodka at a party. The next morning he feels thirsty and finds he is passing more urine than normal. Which one of the following best explains why people who drink excessive amounts alcohol develop polyuria?

A.Ethanol inhibits ADH secretion

B.Ethanol induces vasoconstriction of the renal arteries

C.Ethanol increases aquaporin proteins in the proximal convoluted tubule

D.Osmotic diuresis induced by ethanol

E.Supratentorial reflex to cleanse the body of toxins

Answer:Ethanol inhibits ADH secretion

Explanation:

Ethanol reduces the calcium-dependent secretion of anti-diuretic hormone (ADH) by blocking channels in the neurohypophyseal nerve terminal.

Nausea associated with hangovers is mainly due to vagal stimulation to the vomiting centre. Following a particular severe episode of alcohol excess people may experience tremors. These are due to increased glutamate production by neurones to compensate for the previous inhibition by ethanol.

Question:

A previously asymptomatic 30-year-old woman has presented to the emergency department with severe dyspnoea while jogging. She stated that this has occurred twice before in the last month but this time it was more serious which prompted her to seek help. She has not been diagnosed with any conditions. She is adopted and is aware that her biological mother suffered from rheumatic fever as a child and biological father had 'some sort of heart problem'. All vital signs were within normal range. An ECG was done and showed left ventricular hypertrophy.

What is the most likely diagnosis?

A.Mitral stenosis

B.Aortic stenosis

C.Friedrich's ataxia

D.Hypertrophic obstructive cardiomyopathy (HOCM)

E.Wolff-Parkinson White

Answer:Hypertrophic obstructive cardiomyopathy (HOCM)

Explanation:

HOCM may present with exertional dyspnoea

Important for meLess important

This presentation is most likely HOCM. The age, history and ECG changes point towards this diagnosis. Aortic stenosis can present this way if a person has a congenital bicuspid valve, however, this would occur later on in life. Wolff-Parkinson White would present with palpitations and dizziness with a high heart rate. Friedreich's ataxia is linked to hypertrophic cardiomyopathy however it would typically present with more features including weakness, poor coordination and hearing impairment. Rheumatic fever is associated with mitral regurgitation however her mother having this condition does not affect her risk.

Question:

Jane, a 12-year-old girl presented with pain in her hip, especially on walking. The pain had been getting worse. She also described feeling a sensation of snapping when she moved her hip. Her past medical history includes recurrent left shoulder dislocations. There was no past medical history of congenital hip dysplasia. Her father suffered from Ehler-Danlos syndrome.

Examination of the hip revealed normal passive and active movement with no restriction in the range of movement. There was no joint swelling. Which of the following is useful to assess hypermobility?

A.Schirmer's test

B.Plain radiograph

C.MRI scan

D.Beighton score

E.Galeazzi test

Answer:Beighton score

Explanation:

Beighton score is a useful tool to assess hypermobility. Beighton score is positive if at least 5/9 in adults, or at least 6/9 in children

Important for meLess important

Schirmer's test is used in the investigation of Sjogren syndrome. Plain radiograph and MRI scan are not helpful in assessing hypermobility. Galeazzi test is a test used to check for any unilateral developmental dysplasia of the hip.

Beighton score is a useful tool to assess hypermobility. Beighton score is positive if at least 5/9 in adults, or at least 6/9 in children. See https://www.ehlers-danlos.com/assessing-joint-hypermobility/ on how to carry out the Beighton score assessment

Question:

A 59-year-old man attends his general practitioner for review of his blood pressure. He has a background of hypothyroidism, asthma and hypercholesterolemia. He remains asymptomatic and his QRISK score is calculated at 12%.

Current medications include levothyroxine, atorvastatin, lercanidipine, beclomethasone and salbutamol. He has no known allergies.

Blood pressure is measured at 148/94 mmHg as an average of three readings.

Which of the following is the most appropriate action?

A.Addition of losartan

B.Addition of bisoprolol

C.Addition of doxazosin

D.Addition of spironolactone

E.No change to medication required

Answer:Addition of losartan

Explanation:

Poorly controlled hypertension, already taking a calcium channel blocker - add an ACE inhibitor or an angiotensin receptor blocker or a thiazide-like diuretic

Important for meLess important

This patient, a non-diabetic aged over 55 has blood pressure not adequately controlled on recommended first-line therapy (calcium channel blocker single therapy).

Blood pressure targets for those <80 years are recommended to be <140/90mmHg at clinic or <135/85mmHg if home/ambulatory monitoring is used. The QRISK score is used to determine if initial anti-hypertensive treatment should be commenced (if <80 years of age and QRISK>10%), but in this case as the patient is already on therapy, it does not influence the treatment decision.

In order to adequately control his blood pressure an additional agent of either an ACE-inhibitor or angiotensin receptor blocker is recommended. A thiazide-like diuretic may also be used at this stage according to updated 2019 guidelines. As losartan is the only example of any of these classes, it is the correct answer.

Bisoprolol (beta-blocker), doxazosin (alpha Blocker) and spironolactone (aldosterone receptor antagonist) are medications usually reserved for resistant hypertension not responsive to combinations of a calcium channel blocker+ a thiazide-like diuretic+ an ACE-inhibitor OR angiotensin receptor blocker. As this patient is only on a single therapy, the addition of any of these options is not indicated at present.

No change to medication is an incorrect choice as the patient's blood pressure remains outside the target clinic range of 140/90 mmHg.

Question:

A 49-year-old man presents to the GP with complaints of polyuria and polydipsia. When asked, he also reports episodes of nocturia each night. He has no history of diabetes mellitus or any recent head trauma. However, he does have a history of sarcoidosis.

Given the likely diagnosis, what investigation is definitive to diagnose this patient?

A.CT head

B.MRI head

C.Synacthen test

D.Urea and electrolytes

E.Water deprivation test

Answer:Water deprivation test

Explanation:

Investigation for diabetes insipidus - water deprivation test

Important for meLess important

Water deprivation test is correct for this scenario. It is the gold standard test for diagnosing diabetes insipidus. In this case, sarcoidosis can result in the formation of granulomas in the pituitary gland which leads to neurogenic diabetes insipidus. Symptoms of diabetes insipidus include nocturia, polyuria and polydipsia.

CT head is incorrect. This answer does not explain the symptoms of nocturia, polyuria or polydipsia that the patient presents with. However, it may be useful in determining if there is any structural damage to the pituitary gland or the hypothalamus.

MRI head is incorrect in this scenario. Unless there was a suspicion of a pituitary adenoma. For the same reason as the CT head answer, it is not appropriate to diagnose diabetes insipidus.

Synacthen test is incorrect for the diagnosis of diabetes insipidus which is what the patient presents with. Synacthen test is used to determine whether the adrenal glands are producing cortisol.

Urea and electrolytes is incorrect for this scenario. Symptoms like polyuria and polydipsia can not be investigated by testing for urea and electrolytes.

Question:

A 33-year-old woman is reviewed in the epilepsy clinic. Her epilepsy has been well controlled on carbamazepine 400mg twice daily. She is about to give birth to a baby girl and is very keen to breastfeed.

What should the patient be advised?

A.Breastfeeding should be avoided whilst taking anti-epileptic medication

B.Increase the dose of carbamazepine by 50%

C.No changes required

D.Switch carbamazepine to lamotrigine

E.Switch carbamazepine to levetiracetam

Answer:No changes required

Explanation:

Breast feeding is acceptable with nearly all anti-epileptic drugs

Important for meLess important

No changes required is correct. The patient can safely breastfeed whilst taking carbamazepine, or indeed any anti-epileptic medications - except barbiturates.

Breastfeeding should be avoided whilst taking anti-epileptic medication is incorrect. Most antiepileptic medications are safe to continue in breastfeeding.

Increase the dose of carbamazepine by 50% is incorrect. This patient's epilepsy is well controlled on the current regimen. A dose increase is unnecessary and could lead to side effects.

Switch carbamazepine to lamotrigine is incorrect. Her epilepsy is well controlled on the current regimen and a switch would be unnecessary, and no safer.

Switch carbamazepine to levetiracetam is incorrect. This patient's epilepsy is well controlled on the current regimen. A needless switch in antiepileptic medication could potentially trigger seizures.

Question:

A 27-year-old woman has some blood tests taken at her GP as part of an investigation into persistent, mild fatigue. She migrated from Turkey at the age of six and has not had any health problems to date. Her results are as follows:

Hb 105 g/L Male: (135-180)

Female: (115 - 160)

Mean cell volume 66fL (80-100fL)

Platelets 220 \* 109/L (150 - 400)

WBC 5.8 \* 109/L (4.0 - 11.0)

Haemoglobin A2 4.3% (2.3-3.1%)

Blood film 'Microcytic, hypochromic erythrocytes with basophilic stippling and occasional target cells'

What is the most likely diagnosis?

A.Alpha-thalassaemia trait

B.Haemoglobin H disease

C.Beta-thalassaemia trait

D.Beta-thalassaemia major

E.Sickle cell trait

Answer:Beta-thalassaemia trait

Explanation:

Disproportionate microcytic anaemia - think beta-thalassaemia trait

Important for meLess important

This patient has mild anaemia with a disproportionate microcytosis and a raised haemoglobin A2. This is strongly suggestive of beta-thalassaemia trait (also known as beta-thalassaemia minor). In this condition, one of the two inherited copies of the beta-globin gene is defective, usually due to a single point mutation. Beta-thalassaemia trait is often asymptomatic, and Hb is usually normal or only slightly decreased. Blood film findings include morphological changes to the erythrocytes due to the defective beta-globin gene, such as microcytosis and target cells, but reticulocytosis is not common.

Alpha-thalassaemia trait arises from a more heterogeneous range of gene deletions affecting either one or two of the four copies of the alpha-globin gene. This may also manifest as either a normal or slightly reduced Hb with microcytosis, but is not associated with a raised HbA2 percentage.

Haemoglobin H disease refers to a form of alpha thalassaemia where deletions occur in three of the four alpha-globin genes in an individual. Unlike in this patient, one would expect to see more pronounced anaemia, elevated HbH percentage rather than HbA2, blood film reticulocytosis and possible signs and symptoms of haemolysis, such as hepatosplenomegaly and jaundice.

Beta-thalassaemia major presents with severe anaemia, with marked blood film reticulocytosis and anisopoikilocytosis. Paradoxically, HbA2 is often only mildly elevated or normal.

Patients with sickle cell trait have one normal beta-globin allele and one abnormal beta (S) globin allele. Sickle cell trait is often clinically silent and tends to yield normal Hb, HbA2 and MCV levels.

Question:

A 5-year-old male presents to his general practitioner accompanied by his mother. He has been recently having some trouble falling asleep at night, because of an itchy bottom.

The child looks healthy and well. He regularly attends school and enjoys playing in the garden with other children. He visits the doctor only for his vaccinations, for which he is up to date.

Given the most likely diagnosis, which one of the following is the first-line management for this child?

A.Diethylcarbamazine

B.Ivermectin

C.Mebendazole

D.Metronidazole

E.Nystatin

Answer:Mebendazole

Explanation:

Mebendazole is first line therapy for treatment of threadworm

Important for meLess important

The correct answer is mebendazole. This child presents the classic symptoms of a threadworm infestation. Threadworms are extremely common helminths in children. The infection occurs via the ingestion of eggs present in the environment. The child spends a lot of time outside, possibly touching the soil with his hands and putting them in his mouth, causing the infestation. Usually, it is asymptomatic but it can cause perianal itching, particularly at night. Most patients are treated empirically without having to confirm the diagnosis, with hygiene suggestions and mebendazole.

Diethylcarbamazine is is an anti-helmintic used to treat filarial infections. It can be used to treat Wuchereria bancrofti (that causes elephantiasis) and Toxocara canis (that causes visceral larva migrans and retinal granulomas).

Ivermectin is an antiparasitic drug used to treat Strongyloides stercoralis. This infection causes diarrhoea, abdominal pain, papulovesicular lesions where the skin has been penetrated by infective larvae. The patient doesn't have any of these symptoms.

Metronidazole is an antibiotic used to treat gingivitis, pelvic inflammatory disease, syphilis and bacterial vaginosis. It has no role in the management of threadworms.

Nystatin is an antifungal agent used topically to treat oral thrush.

Question:

You are reviewing a 6-month-old child with suspected bronchiolitis. Which one of the following should prompt the consideration of a hospital referral?

A.Oxygen saturations of 96%

B.The child being below the 10th centile for weight

C.Feeding 50% of the normal amount

D.Respiratory rate 54 / min

E.Crackles on auscultation

Answer:Feeding 50% of the normal amount

Explanation:

NICE state the following in their guidelines:

Consider referring children with bronchiolitis to hospital if they have any of the following:

a respiratory rate of over 60 breaths/minute

difficulty with breastfeeding or inadequate oral fluid intake (50–75% of usual volume, taking account of risk factors [see recommendation 1.3.3] and using clinical judgement)

clinical dehydration.

As this infant is at the lower end of the recommendations (50%) referral should be considered.

Question:

A 45-year-old man presents with pain and swelling of his left big toe. He has recently started treatment for active tuberculosis. Which one of the following medications is likely to be responsible?

A.Streptomycin

B.Rifampicin

C.Ethambutol

D.Isoniazid

E.Pyrazinamide

Answer:Pyrazinamide

Explanation:

There are case reports of ethambutol-induced gout but it is not listed as a side-effect in the BNF

Question:

A 25-year-old man presents to the emergency department with a 4-day history of eye pain, redness, photophobia, and a sensation of grittiness. He decided to seek help after noticing a decrease in his vision. He fell asleep wearing contact lenses 3 days ago.

A slit-lamp examination with fluorescein staining is performed which shows the following:

What is the most likely diagnosis?

A.Acanthamoeba keratitis

B.Bacterial keratitis

C.Exposure keratitis

D.Fungal keratitis

E.Viral keratitis

Answer:Bacterial keratitis

Explanation:

The image shows an eye stained with fluorescein undergoing a slit-lamp examination. A circular corneal ulcer is present in the bottom right of the region highlighted in blue on the eye. This alongside the patient's features suggests keratitis. Corneal lesions can be extremely painful due to the high amounts of pain fibres in the cornea. Contact lens use is a significant risk factor for keratitis, as seen in this patient who fell asleep with them in.

Bacterial keratitis is correct. A focal circular/oval-shaped ulcer in the periphery of the cornea is associated with bacterial keratitis. Furthermore, the Pseudomonas aeruginosa bacterium is seen in contact lens wearers.

Acanthamoeba keratitis is incorrect. Although this is associated with contact lens use and exposure to contaminated soil, this makes up around 5% of cases and is much less likely than a bacterial cause. Furthermore, this causes pain that is out of proportion to physical findings and it would be unlikely for this patient to have endured a slit-lamp examination while being in so much pain. Early features of acanthamoebic keratitis do not include an oval-shaped ulcer as seen in this patient and instead consist of pseudodendrites (a corneal ulcer that appears as if it is branching out) and irregularities of the corneal epithelium.

Fungal keratitis is incorrect. This is generally seen in patients with immunosuppression or those using steroid eye drops, which do not apply in this scenario. A slit-lamp examination with fluorescein staining would show an ulcer with a feathery white border (the edges of the ulcer look like feathers and are fuzzy) and satellite lesions (patches of white that surround the main ulcer).

Exposure keratitis is incorrect as this describes inflammation of the cornea due to excess exposure (such as in patients with exophthalmos or when the eyelids cannot close completely). This shows an uneven corneal surface and well-demarcated defects (patches of blue) on staining and does not appear as an oval-shaped ulcer as seen here. Furthermore, there is no mention of risk factors for exposure keratitis including exophthalmos or eyelid pathology.

Viral keratitis is incorrect. The ulcer seen in viral keratitis which is commonly caused by herpes simplex and is often described as a dendritic ulcer. This is where the ulcer appears as if it is branching outwards. This does not apply to this patient.

Question:

A 65-year-old male patient attends their GP for a routine medication review. Their current regular medications are ramipril and amlodipine for hypertension, bisoprolol and digoxin for atrial fibrillation, atorvastatin for hypercholesterolemia and PRN paracetamol for osteoarthritis. The GP decides to alter one of the patients medications.

A week following starting this altered medication, the patient presents to the emergency department with palpitations, nausea & vomiting, lethargy and disturbances to their colour vision. You perform an ECG and note a AV nodal block.

Which of the following new medications is most likely to have precipitated this event?

A.Pravastatin

B.Bendroflumethiazide

C.Bisoprolol

D.Losartan

E.Co-codamol

Answer:Bendroflumethiazide

Explanation:

Thiazides may cause precipitation of digoxin toxicity

Important for meLess important

This patient has presented to the emergency department with symptoms of digoxin toxicity.

Whilst the patients presenting complaint of palpitations, nausea & vomiting and lethargy are non-specific, the clue is in the ECG you request. AV nodal block with the given history is pathognomonic of digoxin toxicity.

Pravastatin is not known to interact with digoxin.

Bendroflumethiazide may interact with digoxin to precipitate toxicity. As hypokalemia may also cause digoxin toxicity, other diuretics may also precipitate toxicity.

Losartan is not known to interact with digoxin.

Co-codamol is unlikely to precipitate digoxin toxicity.

Question:

A 52-year-old woman presents to her general practitioner (GP) to find out the result of her recent cervical smear. Her two previous smears, taken 24 and 12 moths ago, were both positive for high-risk human papillomavirus (HPV), but showed no abnormal cytology. She is informed that her most recent cervical smear was also positive for high-risk HPV.

What is the most appropriate step in this patient's management?

A.Cytological examination of the smear

B.Refer for colposcopy

C.Repeat cervical smear in 5 years

D.Repeat cervical smear in 6 months

E.Repeat cervical smear in 12 months

Answer:Refer for colposcopy

Explanation:

Cervical cancer screening: if 2nd repeat smear at 24 months is still hrHPV +ve → colposcopy

Important for meLess important

Referral for colposcopy is correct because her 2nd repeat cervical smear sample was still hrHPV positive. Under the NHS cervical screening programme, this is an indication for colposcopy referral.

Cytological examination of the smear is not correct because it would not make a difference to the management of this patient. As this was her 3rd hrHPV positive cervical smear she would be referred for colposcopy regardless of cytological finding.

Repeating the cervical smear in 5 years is incorrect because this would be in line with the interval of routine recall for a patient her age. This would only be appropriate if her cervical smear was negative for hrHPV which is not the case.

Repeating a cervical smear after 6 months is incorrect because it would usually be indicated as a test of cure following treatment for cervical intraepithelial neoplasia.

Repeating the cervical smear after 12 months it incorrect because this is her 2nd repeat smear that is hrHPV positive. It would only be appropriate if it was either her routine smear or her 1st repeat smear that was hrHPV positive and there were also no cytological abnormalities.

Question:

A 78-year-old man presents to emergency department with sudden onset, severe, diffuse abdominal pain at 7:30pm after finishing his evening meal. It is intermittent and severe in nature. However the abdomen is soft on examination. While in hospital he suffers from 1 episode of non-bloody emesis. Initial imaging does not yield any diagnosis. He has a history of GORD, hernia repair, hypertension, myocardial infarction and atrial fibrillation. What is the most likely diagnosis?

A.Ruptured ulcer

B.Small bowel obstruction

C.Diverticulitis

D.Ischaemic colitis

E.Mesenteric adenitis

Answer:Ischaemic colitis

Explanation:

Ischaemic colitis is the most likely diagnosis given this man's classic presentation (after a meal, intermittent and severe pain, pain out of proportion to clinical findings) and given his predisposing factors (prev. myocardial infarction, atrial fibrillation, hypertension).

Ruptured ulcer would give rise to severe and diffuse abdominal pain, but would likely present with epigastric pain at first and bloody emesis. Initial imaging (ex. CT) would likely find the source of the abdominal pain. Small bowel obstruction, though would present with intermittent pain, his clinical examination and imaging would likely show a distended abdomen and the obstruction on imaging. Diverticulitis would present with PR bleed and bowel symptoms on top of the pain. Mesenteric adenitis is more common in paediatric patients.

Question:

The ECG below is taken from a 78-year-old woman who had been experiencing palpitations for the past two days:

© Image used on license from Dr Smith, University of Minnesota

What is the shown on the ECG?

A.Sick sinus syndrome

B.Atrial flutter with variable block

C.Polymorphic ventricular tachycardia

D.Supraventricular tachycardia

E.Monomorphic ventricular tachycardia

Answer:Atrial flutter with variable block

Explanation:

Whilst 'sawtooth' waves are seen the rhythm is irregular suggesting a diagnosis of atrial flutter with variable block.

Question:

A 3-year-old girl attends her GP accompanied by her mother. Her mother states she has been itching uncontrollably for the last 3 days and that it has also been affecting her sleep. The girl has a history of eczema for which she has been taking zero-derm ointment and topical betnovate twice a day for the last week. Her mother states she has managed all exposure to any triggers.

On examination, there is evidence of large erythematous patches of dry scaly skin over her flexor surfaces with underlying lichenification.

What is the most appropriate next step in managing her eczema?

A.Oral ciclosporin

B.Oral flucloxacillin

C.Referral to secondary care

D.Topical pro-topics e.g. tacrolimus

E.Wet wrapping

Answer:Wet wrapping

Explanation:

Wet wrapping may be helpful in severe childhood eczema: large amounts of emollient (and sometimes topical steroids) applied under wet bandages

Important for meLess important

Wet wrapping is the correct answer. This child is currently being managed with topical betnovate steroid therapy twice daily and regular emollient therapy, however, given her history it is clear these treatments are not managing her symptoms. Given her age, it would be appropriate to trial wet wrapping, this includes large amounts of emollients and in some cases, steroids applied under wet bandages. Therefore in this case, it would be appropriate to talk to her mother again about the avoidance of allergens and irritants, as well as a trial of wet bandaging with emollients following the application of steroids. If this is not effective it would then be appropriate to think about applying topical steroids under the wet bandage as well.

Oral ciclosporin is incorrect. Oral ciclosporin is often considered in very severe cases that are not responding to wet bandaging or further step-up therapy. This is classically started in secondary care.

Oral flucloxacillin is incorrect. Flucloxacillin is classically given for bacterial skin infections. There is nothing in this girl's history to suggest a bacterial skin infection, therefore it would be inappropriate to give this.

Referral to secondary care is incorrect. This should be considered if wet bandaging is not effective. Given her age, it would be appropriate to have specialist advice before starting further immunomodulating therapy such as calcineurin inhibitors when required.

Topical pro-topics e.g. tacrolimus is incorrect. This is commonly given as a steroid-sparing agent in patients with facial eczema. This would be considered in this child at a smaller dose, and if there are concerns about side effects from regular use of potent steroids such as skin atrophy. This is not stated in this scenario and therefore may not be appropriate. Additionally, the child does not have any obvious facial eczema.

Question:

A 52-year-old man presents to the emergency department with haemoptysis and pleuritic chest pain for 36 hours. He is currently undergoing chemotherapy for non-Hodgkin's lymphoma. Aside from the lymphoma he has no other medical history. On examination, he is tachypnoeic and tachycardic. His ECG shows sinus tachycardia and his chest x-ray is unremarkable.

What is the next most appropriate investigation?

A.COVID-19 swab

B.CT chest

C.CT pulmonary angiogram

D.D-dimer

E.V/Q scan

Answer:CT pulmonary angiogram

Explanation:

Pulmonary embolism - CTPA is first-line investigation

Important for meLess important

This is a suspected pulmonary embolism due to new onset pleuritic chest pain and haemoptysis on a background of current cancer treatment.

His Wells' score would be 6 as he would score for suspicion of a pulmonary embolism (+3), haemoptysis (+1), tachycardia (+1), and active cancer (+1). He does not score for: immobilisation/surgery, signs of DVT, or previous DVT/PE. Therefore, as his Wells' score is >4, the next most appropriate investigation would be CT pulmonary angiogram .

A COVID-19 swab would be useful but is not the most appropriate investigation given the suspicion of pulmonary embolism. The lack of cough, sore throat, and fever also point away from this diagnosis.

CT chest would give a better visualisation of the lungs given that the chest x-ray is unremarkable. However, it does not assess perfusion of the pulmonary arteries and so lacks sensitivity for pulmonary emboli detection compared with a CT pulmonary angiogram.

D-dimer would be indicated if the patient had a Well's score of 4 or below. However, as explained above, the score is 6 and so a d-dimer is not indicated as clinical suspicion is high enough to warrant immediate CT pulmonary angiogram.

V/Q scan is another option for diagnosing pulmonary embolism. However, outside of obstetrics, CT pulmonary angiogram is the first-line investigation for a pulmonary embolism and so it is not indicated for this patient.

Question:

A 31-year-old woman presents with a painful, swollen left calf, and she is found to have a left popliteal deep venous thrombosis (DVT). She reports no recent travel, surgery, or immobilisation, and has never had a DVT before. She reports a positive pregnancy test 3 days ago but then bursts into tears saying that she is terrified to lose yet another pregnancy, having had 3 miscarriages already.

Apart from a swollen and tender left calf, she also has lace-like blue skin discolouration at her hands and feet, with scattered splinter haemorrhages. Vital signs are normal.

What is the most likely underlying diagnosis?

A.Antiphospholipid syndrome

B.Dermatomyositis

C.Disseminated intravascular coagulation (DIC)

D.Factor V Leiden

E.Polycythaemia rubra vera

Answer:Antiphospholipid syndrome

Explanation:

Antiphospholipid syndrome: arterial/venous thrombosis, miscarriage, livedo reticularis

Important for meLess important

The correct answer is antiphospholipid syndrome. This woman is presenting with a deep venous thrombosis on a background of recurrent miscarriage, which suggests that there is an underlying systemic disorder that is responsible for her difficulties in carrying a pregnancy to term. Her skin discolouration is suggestive of livedo reticularis, which results from poor blood flow to the skin and areas of cyanosis surrounding areas of normal vascularisation. The combination of livedo reticularis, splinter haemorrhages, DVT, and recurrent miscarriage in a young woman is strongly suggestive of antiphospholipid syndrome. Antiphospholipid syndrome is an autoimmune hypercoagulable disorder that can be primary or secondary to another condition such as systemic lupus erythematosus (SLE).

Dermatomyositis is incorrect, as this condition would typically present with a heliotrope rash on the eyelids and around the eyes, myopathy, and other dermatological signs such as Gottron papules on the hands. Dermatomyositis is not a hypercoagulable state and does not usually cause venous thrombosis or recurrent miscarriage.

Disseminated intravascular coagulation (DIC) is incorrect. DIC is a condition that is usually secondary to another serious underlying disease, as it is a result of the depletion of platelets and clotting factors. Causes are varied including sepsis, viraemia, obstetric complications, acute tissue injuries, cancer, and some communicable diseases. This patient’s vital signs are normal and she is in the early stages of her pregnancy, making DIC less likely. She has no petechial or purpuric rash which would suggest bleeding into the skin.

Factor V Leiden is incorrect. This is an inherited condition characterised by a tendency to form clots at a higher rate than those who do not carry the mutation, and thus these patients tend to have a higher risk of DVT. In terms of obstetric complications such as miscarriage, there is debate about whether Factor V Leiden has a significant impact on the risk of these. Therefore the combination of three miscarriages, DVT, livedo reticularis, and splinter haemorrhages make antiphospholipid syndrome a more likely diagnosis.

Polycythaemia rubra vera is incorrect. This is a chronic haematological disorder whereby the over-proliferation of red blood cells results in a hypercoagulable state. One of the skin manifestations of polycythaemia is livedo reticularis, others include a ruddy complexion, pruritis, erythromelalgia, acrocyanosis, and pyoderma gangrenosum. A full blood count should be performed to rule this condition out, but the history of recurrent miscarriage and absence of other skin signs is more suggestive of antiphospholipid syndrome.

Question:

A 43-year-old woman presents to the walk-in sexual health clinic complaining of a 'fishy' vaginal discharge. She has no significant past medical history and is on no regular medications. She has had one new male sexual partner in the last six months.

On examination of the genitalia, there was a thin white homogeneous discharge visible. There were no vesicles, ulcers or erosions. There was no evidence of cervical lymphadenopathy. The cervix and vagina were not inflamed.

A swab of the discharge was taken and investigations were organised. Microscopy demonstrated clue cells and the vaginal pH was noted to be > 4.5.

Which organism is most likely to be responsible for this clinical picture?

A.Candida albicans

B.Neisseria gonorrhoea

C.Chlamydia trachomatis

D.Gardnerella vaginalis

E.Trichonoma vaginalis

Answer: Gardnerella vaginalis

Explanation:

Bacterial vaginosis - overgrowth of predominately Gardnerella vaginalis

Important for meLess important

Gardnerella vaginalis is the correct answer. Gardnerella vaginalis is a commensal anaerobe in 30-40% of women, however an overgrowth of this bacteria (along with other anaerobes) leads to a fall in lactic acid producing aerobic lactobacilli. This results in a raised vaginal pH and bacterial vaginosis (BV). This woman presents with a clear, thin homogenous 'fishy' discharge with a raised vaginal pH and clue cells on microscopy. She fulfils 3/4 of Amsel's criteria and therefore can be diagnosed with BV.

Candida albicans is incorrect. This causes a white, non-offensive discharge and is typically associated with itch and a vaginal pH < 4.5.

Neisseria gonorrhoea is incorrect. The discharge of gonorrhoea is typically thick and green and may also be associated with dysuria and intermenstrual bleeding. Diagnosis can be confirmed by nucleic acid amplification testing (NAAT) on a vaginal swab.

Chlamydia trachomatis is incorrect. The above findings are not typical of chlamydia. It can cause an abnormal discharge but is often associated with other symptoms such as dysuria and intermenstrual bleeding. Conversely, it may also be asymptomatic. Diagnosis can be made either with a urine or swab NAAT.

Trichonoma vaginalis is incorrect. This causes a frothy, yellow discharge and is often associated with vulvitis, vaginitis or cervicitis.

Question:

A 65-year-old male presents with diplopia. Examination reveals a right-sided fixed pupil, ptosis and inability to adduct or supraduct his eye.

What is the most likely cause of this presentation?

A.Left fourth nerve palsy

B.Right sixth nerve palsy

C.Right fourth nerve palsy

D.Left third nerve palsy

E.Right third nerve palsy

Answer:Right third nerve palsy

Explanation:

Third nervy palsy presenting with a large pupil = surgical cause - needs urgent brain imaging

Important for meLess important

This is most likely a right 'surgical' third nerve palsy as outlined by the ptosis, enlarged pupil and inability to adduct/supraduct.

He should be investigated with an urgent CT head/angiogram to rule out bleed/aneurysm.

Medical third nerve palsies rarely present with pupillary involvement due to the parasympathetic nerve fibre location. Parasympathetic fibres are supplied by pial blood vessels as opposed to vasa nervorum.

Question:

A 26-year-old woman attends the GP surgery reporting abdominal pains. She missed her last period and had unprotected sexual intercourse 7 weeks ago. She reports no vaginal discharge or per vaginal bleeding. She reports no urinary symptoms.

On examination, her abdomen is soft but there is mild suprapubic tenderness. Her heart rate is 70 beats per minute, blood pressure is 120/80 mmHg and she is apyrexial. You perform a pregnancy test which is positive.

According to current NICE CKS guidance, what is the next most appropriate management step?

A.Arrange immediate referral to the early pregnancy assessment unit

B.Refer for an urgent outpatient transvaginal ultrasound scan this week

C.Measure serum human chorionic gonadotrophin (hCG) and arrange repeat blood test in 48 hours

D.Measure serum human chorionic gonadotrophin (hCG) and arrange repeat blood test in 72 hours

E.Refer the patient to the sexual health clinic for Chlamydia and gonorrhoea swabs

Answer:Arrange immediate referral to the early pregnancy assessment unit

Explanation:

Women who have a positive pregnancy test and either abdominal, pelvic or cervical motion tenderness should be immediately referred for assessment

Important for meLess important

According to current NICE CKS guidance, women who have a positive pregnancy test and either abdominal, pelvic or cervical motion tenderness should be immediately referred for assessment. This is to exclude an ectopic pregnancy, which could potentially be fatal.

Although it is likely an ultrasound will be arranged by the early pregnancy assessment unit if a scan cannot be arranged for today, the patient should still be referred as they may require monitoring in hospital before their scan (if the early pregnancy unit is not open, then the patient should be referred to gynaecology).

Although gynaecology specialists may undertake serial serum human chorionic gonadotrophin (hCG) measurements to determine subsequent management this should not be done in secondary care owing to the risk of managing a potential ectopic pregnancy in the community.

Although sexual health swabs may be important in this case, the patient needs immediate admission and therefore referring the patient to the sexual health clinic alone is not correct.

Question:

You are working in a busy emergency department. A 23-year-old female presents explaining that a few hours ago she broke up with her boyfriend and while having an argument took 20 of her father's tablets. She is worried and says she is experiencing muffled hearing with bouts of ringing on both sides. Vital signs were all normal apart from a respiratory rate of 28 per minute.

An overdose of which medication is most likely?

A.Paracetamol

B.Bisoprolol

C.Aspirin

D.Carbamazepine

E.Amitriptyline

Answer:Aspirin

Explanation:

Tinnitus may be one of the earliest symptoms of aspirin overdose

Important for meLess important

Salicylate toxicity within hours will lead to a respiratory alkalosis followed metabolic acidosis. The patient here is presenting with the former and tinnitus also links this with this overdose.

Question:

A 23-year-old female is brought into the emergency department on a Friday night by her friends who suspect she has 'taken something'. She appears anxious and cannot sit still, claiming that the walls appear to breathe and the floor is moving. Observations are not taken as she refuses, anxious that the nurse is plotting to hurt her. During the history, she intermittently will refer to herself in the third person and comment on her own actions as an observer. She has no past medical history and takes no regular medications.

Of the following, which is the most likely cause of her symptoms?

A.Amphetamines

B.Cocaine

C.Lysergic acid diethylamide

D.Methylphenidate

E.Non-substance related disorder

Answer:Lysergic acid diethylamide

Explanation:

LSD intoxication causes colourful visual hallucinations, depersonalisation , psychosis and paranoia

Important for meLess important

This patient has typical symptoms of lysergic acid diethylamide (LSD) intoxication - it is common for LSD users to report seeing wall and floor distortion. It is a chemical hallucinogen which is also called 'tab', 'stars', and 'liquid acid'. It typically causes distortion of colour, objects, and time. Users may feel euphoria, energised and excited, or may experience anxiety, confusion, and paranoia. Some people can experience difficulty speaking when taking LSD as it leads them to become introverted during their trip.

Amphetamines (or speed) are stimulants that will usually be prepared as a powder or small crystals. It often leads to users feeling alert, energised, and awake. Some users may feel agitated or anxious. It typically causes users to lose their appetite (it was originally part of the formulation of 'diet pills'). It may infrequently cause episodes of psychosis, however, this is not a commonly reported side effect of this drug and therefore does not explain this patient's symptoms.

Cocaine is a stimulant drug that can lead to feelings of awareness, excitement, and confidence. It can cause tachycardia, raise body temperature, and cause anxiety sensations. Some users report that it increases their sex drive while using, however, chronic users generally experience a loss of libido over time. Cocaine ingestion would not explain all of this patient's symptoms such as wall and floor distortion and therefore is not as likely to be the cause.

Methylphenidate is a stimulant drug prescribed for ADHD which causes alertness and feeling energised. Some users may feel agitated and lose their appetite. It is a class B drug. While it can lead to psychotic episodes, it is a relatively uncommon side effect and therefore not likely to be the cause here.

This presentation is consistent with the use of LSD and while it could be triggered by a non-substance-related disorder, the history of recent drug consumption makes this option less likely.

Question:

Peter, a 64-year-old man, presents to his general practitioner (GP) for an occupational health check.

Peter says that he feels well. He is proud of his health, saying that 'I haven't seen a doctor for the past 30 years!'. He denies any symptoms, other than feeling a bit more stressed at work at the moment. His examination findings are as follows:

Heart rate 60bpm

Blood pressure 190/136mmHg; 184/130 when repeated after 5 minutes

Oxygen saturation 98% (room air)

Heart sounds dual, no murmur

Chest clear

Abdomen soft, non-tender

No peripheral oedema

Based on the above information, what is the most appropriate next stage in Peter's investigation/ management?

A.Carry out urgent ECG, urine dipstick and blood tests

B.Encourage lifestyle change with exercise and optimising diet

C.Prescribe anti-hypertensive medications

D.Refer to cardiology outpatient clinic

E.Repeat his health check in 1 week

Answer:Carry out urgent ECG, urine dipstick and blood tests

Explanation:

If new BP >= 180/120 mmHg + no worrying signs then the first step is urgent investigations for end-organ damage

Important for meLess important

In patients with a new blood pressure (BP) >= 180/120 mmHg, given there are no worrying signs, then the first step is urgent investigations for end-organ damage. As Peter is one of these patients, he should have an urgent ECG, urine dipstick and blood tests to check for end-organ damage.

While offering lifestyle change advice is suitable for some cases of hypertension, it should not be the next step for Peter as he has a new BP >= 180/120 mmHg.

Peter will likely require anti-hypertensive medications, however, he should first be investigated for end-organ damage due to his hypertension.

Severe hypertension should be urgently investigated. In the case where there are no concerning clinical signs, such a condition can be investigated and managed in the community. Admission for specialist assessment is required in the presence of chest pain or any signs of retinal haemorrhage, heart failure or acute kidney injury. Sending a referral to the cardiology outpatients service is therefore not the best answer here.

Peter's blood pressure should be monitored going forward. However, steps need to be taken prior to this to investigate and manage his hypertension.

Question:

A 27-year-old woman presents to occupational health before beginning her new job as a healthcare assistant. She has no past medical history and takes no medications. She remembers her uncle having a liver condition when she was a child, but does not remember which kind.

The team runs multiple tests, including hepatitis B serology which shows the following results:

HBsAg negative

Anti-HBs positive

Anti-HBc IgG negative

Anti-HBc IgM negative

What is the interpretation of her results?

A.Acute hepatitis B infection

B.Chronic hepatitis B infection

C.Immunity due to previous hepatitis B infection

D.Previous hepatitis B immunisation

E.Susceptibility to hepatitis B infection

Answer:Previous hepatitis B immunisation

Explanation:

HBsAg negative, anti-HBs positive, IgG anti-HBc negative - previous immunisation

Important for meLess important

The correct answer is previous hepatitis B immunisation. The patient is HBsAg negative. This marker is the first one to become positive in infection, so its negativity means that there is no acute or chronic infection. Anti-HBs is positive, indicating that the patient has developed antibodies to the surface antigen, the ones introduced with vaccination. Anti-HBc IgG and IgM are negative, meaning that the patient has not developed long-term antibodies to the core antigen of the virus.

An acute hepatitis B infection would present with positive HBsAg (first disease marker), anti-HBc IgM would be positive (due to recent infection) and anti-HBc IgG negative (as the patient did not have the time to develop those yet). Anti-HBs would be positive indicating that the patient has developed antibodies to the surface antigen.

A chronic hepatitis B infection would present with positive HBsAg (first disease marker) and positive anti-HBc IgG (due to longstanding infection), associated with negative anti-HBc IgM (which have already been produced). Anti-HBs would be positive indicating that the patient has developed antibodies to the surface antigen.

Immunity due to previous hepatitis B infection would present with HbsAg negative (no infection at the moment), and positive anti-Hbc and anti-HBs, as both the surface and core antigen, are present on the virus.

Susceptibility to hepatitis B infection would present with all negative results, as the patient never came in contact with the virus in any form.

Question:

A 70-year-old woman is prescribed bumetanide for congestive cardiac failure. Where is the site of action of bumetanide?

A.Descending loop of Henle

B.Macula densa

C.Ascending loop of Henle

D.Distal collecting duct

E.Proximal collecting duct

Answer:Ascending loop of Henle

Explanation:

Furosemide - inhibits the Na-K-Cl cotransporter in the thick ascending limb of the loop of Henle

Important for meLess important

Bumetanide, like furosemide, is a loop diuretic.

Question:

A 54-year-old man presents to the endocrinology clinic. His GP referred him following a suspicious thyroid lump. The patient has undergone a US-guided FNAC which has demonstrated medullary thyroid cancer. A CT scan of the chest and neck reveals no further spread. The patient has a history of asthma and hypertension. as well as intermittent headaches which he finds difficult to control. He normally has ramipril, amlodipine, bendroflumethiazide and atenolol, but still has found it difficult to control his hypertension. On examination, there is a palpable neck mass, but otherwise, there are no abnormalities. What is the most likely explanation for the intermittent headaches?

A.Congenital adrenal hyperplasia

B.Cushing's disease

C.Cushing's syndrome

D.Insulinoma

E.Phaeochromocytoma

Answer:Phaeochromocytoma

Explanation:

Medullary thyroid cancer is associated with MEN-2

Important for meLess important

This patient has a medullary carcinoma of the thyroid and poorly controlled hypertension despite intense pharmacological therapy. Medullary carcinoma is associated with MEN-2, which in turn is associated with phaeochromocytoma, which can explain the poorly controlled hypertension. Insulinoma is associated with MEN-1 and presents with hypoglycaemia, typically in the morning, as well as weight gain. Cushing's syndrome would cause persistent hypertension with electrolyte abnormalities as well as Cushingoid signs. His normal appearance makes both Cushing's syndrome and disease less likely.

Question:

A 25-year-old gentleman presents to general practice with a new erythematous rash. The rash first appeared on his right shoulder one week ago at the site of a tick bite and has gradually grown in size. He denies any itching or pain at the site of the rash and it is not hot to touch. He also complains of generalised fatigue, joint pain and chills. He has no past medical history of note and takes no regular medication. He has no known drug allergies. His only recent travel was on a walking tour of the Scottish Highlands two weeks ago.

HR 86bpm

BP 126/74 mmHg

RR 14bpm

Sats 99% on room air

Temperature 37.7º

Which of the following is the most appropriate antimicrobial to treat this patient?

A.Oral ceftriaxone

B.Oral doxycycline

C.IV doxycycline

D.IV ceftriaxone

E.IV benzylpenicillin

Answer:Oral doxycycline

Explanation:

First line treatment for early Lyme disease is a 14-21 day course of oral doxycycline

Important for meLess important

Lyme Disease is caused by bacteria transmitted via the bite of an infected tick. High risk areas for infected ticks in the UK include the South of England and Scottish Highlands. Lyme disease can be diagnosed in patients with the erythema migrans rash. This is a red rash which grows in size and sometimes has a central clearing (like a bull’s eye). It is not usually itchy or painful. The rash typically appears 1-4 weeks after the tick bite and lasts for several weeks. Patients may also complain of fever, sweats, malaise, lymphadenopathy, myalgia, cognitive impairment (brain fog), headache, neck pain or stiffness and paraesthesia.

Lyme disease may also present with symptoms or signs relating to specific organ systems including neurological symptoms, cardiac symptoms, ophthalmological symptoms, inflammatory arthritis and skin rashes. These are known as focal symptoms.

The presence of erythema migrans is sufficient to begin treating a patient without laboratory investigations. Lyme disease without focal symptoms is treated with oral doxycycline. IV ceftriaxone or cefotaxime is recommended for Lyme disease associated with cardiac or neurological complications.

Question:

A 65-year-old patient on your afternoon telephone appointment list describes a painful watering right eye after cutting the grass in his garden. His wife can see a grass seed visibly lodged near his cornea.

What would be the most appropriate management plan?

A.Prescribe chloramphenicol eye drops and remove the foreign body the next morning at the practice

B.Refer to ophthalmology immediately for assessment that day

C.Advise eye irrigation to remove the seed and prescribe chloramphenicol eye drops for 7 days

D.Remove the foreign body that day at the practice and examine again 24 hours later

E.Remove the foreign body that day at the practice and refer to ophthalmology for review 48 hours later

Answer:Refer to ophthalmology immediately for assessment that day

Explanation:

A patient with an organic foreign body in their eye (eg grass seed) should be referred immediately to ophthalmology for assessment (due to infection risk)

Important for meLess important

As this patient has an organic foreign body in their eye they need to see ophthalmology on the same day to remove it due to increased infection risk. In addition, this is likely to be a high-velocity injury during grass cutting which is an additional reason for same-day specialist assessment.

To delay removal to the following day and attempt it in primary care would not be acceptable as outlined above.

Irrigation and antibiotics without assessment may lead to the foreign body remaining in the eye for much longer and increase infection risk.

As this is organic material the ophthalmology department needs to see this patient on the same day rather than you removing the foreign body at the practice as discussed above.

Question:

This patient has developed side-effects related to his long-term medication:

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Which drug is most likely to be responsible?

A.Doxycycline

B.Amiodarone

C.Prednisolone

D.Testosterone replacement therapy

E.Phenytoin

Answer:Prednisolone

Explanation:

This image demonstrates facial plethora and moon facies, both common features of Cushing's syndrome.

Question:

The mother of a newborn attends the GP surgery to find out more about the current UK childhood immunisation schedule. She is particularly concerned about the new 6-in-1 vaccination for fear of 'overloading' her baby. Which immunisations are included in this vaccine?

A.Diphtheria, tetanus, pertussis, polio, haemophilus influenzae type b and meningitis B

B.Diphtheria, tetanus, pertussis, polio, MenACWY and hepatitis B

C.Diphtheria, tetanus, pertussis, polio, meningitis C and hepatitis B

D.Diphtheria, tetanus, pertussis, polio, haemophilus influenzae type b and hepatitis B

E.Diphtheria, tetanus, pertussis, polio, haemophilus influenzae type b and MenACWY

Answer:Diphtheria, tetanus, pertussis, polio, haemophilus influenzae type b and hepatitis B

Explanation:

As of 2017, the hepatitis B vaccination is now part of the UK routine immunisation schedule as part of the 6-in-1 vaccine

Important for meLess important

The 5-in-1 vaccine included diphtheria, tetanus, pertussis, polio and haemophilus influenzae type b. Hepatitis b has now been added to it to become the '6-in-1' vaccine. The vaccine is given at 8, 12 and 16 weeks of age.

Question:

A 42-year-old lady is investigated for symptoms of irritability and altered bowel habit. On examination she is noted to have a smooth enlargement of the thyroid gland. As part of her investigations thyroid function tests are requested, these are as follows:

TSH 0.1 mu/l

Free T4 35 pmol/l

ESR 19 mm/hr

The most likely underlying diagnosis is:

A.Multinodular goitre

B.Follicular carcinoma of the thyroid gland

C.Graves' disease

D.De Quervain's thyroiditis

E.Hashimoto's thyroiditis

Answer:Graves' disease

Explanation:

TSH receptor antibodies will cause stimulation of the thyroid to synthesise T4. However, this will have a negative feedback effect on the pituitary causing decrease in TSH levels.

Where hyperthyroidism occurs secondary to pregnancy the TSH is typically elevated.

Question:

A 50-year-old man presents with right-sided ear pain and facial weakness. He had flu-like symptoms of fever and headache for three days before the rash appeared.

On examination, there is a right-sided facial nerve palsy. A vesicular rash is seen on otoscopy.

How should this patient be managed?

A.Corticosteroids only

B.Intravenous aciclovir

C.Oral aciclovir and corticosteroids

D.Oral aciclovir only

E.Reassurance

Answer:Oral aciclovir and corticosteroids

Explanation:

Treatment of Ramsay Hunt syndrome consists of oral aciclovir and corticosteroids

Important for meLess important

The correct answer is oral aciclovir and corticosteroids.

Ramsay Hunt syndrome (herpes zoster oticus) is caused by the reactivation of the varicella-zoster virus in the geniculate ganglion of the seventh cranial nerve. This patient presents with typical features of the disease including ear pain, facial nerve palsy and a vesicular rash around the ear. Other features include vertigo and tinnitus. Full recovery is more likely if antiviral treatment is started within 72 hours of the onset of symptoms. First-line treatment includes aciclovir 800 mg orally five times daily for 7 days and prednisone 60 mg orally daily for 5 days.

Steroids are thought to be helpful in Ramsay-Hunt syndrome due to their strong anti-inflammatory action. This is thought to reduce oedema in the affected nerves and result in shorter disease duration. However, trial evidence supports combining aciclovir and steroids, rather than steroids alone.

Generally, unless the patient is systemically unwell, aciclovir is given orally rather than intravenously for Ramsay-Hunt syndrome.

Steroids are thought to be helpful in Ramsay-Hunt syndrome due to their strong anti-inflammatory action. This is thought to reduce oedema in the affected nerves and result in shorter disease duration. Trial evidence supports combining aciclovir and steroids, rather than steroids alone.

There is evidence that treating Ramsay Hunt syndrome with a combination of oral aciclovir and steroids reduces disease severity and duration, therefore, reassurance alone is an incorrect answer.

Question:

A 25-year-old man presents to his GP with a history of watery diarrhoea for several days. Last week the patient had taken IM ceftriaxone for gonorrhoea. There has been no recent travel and his diet has remained unchanged. This is the first time the patient has experienced diarrhoea in his lifetime. The GP carried out some investigations which revealed the following:

C.difficile toxin positive

What is the most appropriate course of action?

A.Prescribe oral fidaxomicin

B.Prescribe oral metronidazole

C.Prescribe oral vancomycin

D.Prescribe oral vancomycin with intravenous metronidazole

E.Prescribe oral vancomycin with oral metronidazole

Answer:Prescribe oral vancomycin

Explanation:

Oral vancomycin is the first line antibiotic for use in patients with C. difficile infection

Important for meLess important

Prescribe oral vancomycin is correct. This patient is suffering from a C. difficile infection on the background of taking IM ceftriaxone. This is confirmed by the positive C. difficile toxin in the stool. Given this is the patient's first episode of C. difficile, he should be prescribed oral vancomycin.

Prescribe oral fidaxomicin is incorrect. Fidaxomicin is recommended if the patient presents with a recurrent episode of C.difficile within 12 weeks of symptoms resolution. Recurrence of C.difficile infection within 12 weeks may indicate that the organism is resistant and thus requires fidaxomicin.

Prescribe oral metronidazole is incorrect. Metronidazole is an alternative but less effective agent that can be used in the first episode of non-severe C.difficile infection. It would not be the first-line treatment. The use of metronidazole has been associated with higher rates of treatment failure and thus should only be used if vancomycin can't be used (e.g. is not available) or if there is a true contraindication which is not the case in this question.

Prescribe oral vancomycin with intravenous metronidazole is incorrect. This regimen would only be used if there was a life-threatening C. difficile infection. A life-threatening C. difficile infection occurs when the patient has a confirmed C. difficile infection with hypotension, partial or complete ileus, toxic megacolon or CT evidence of severe disease. Our patient has none of these features.

Prescribe oral vancomycin with oral metronidazole is incorrect. These two drugs are not prescribed together for a first-episode C. difficile infection. Oral vancomycin is used as the first-line antibiotic for a first episode C. difficile infection. Oral metronidazole is used in the same scenario by itself as an alternative if vancomycin is not available or if it is contraindicated. There is no mention of the patient having any contraindications to vancomycin and thus he should be prescribed this alone.

Question:

The surgeons request you review the ECG of a 22-year-old man. He is an athlete who was admitted following a sporting injury. A previous ECG from three years ago was unremarkable.

What ECG finding should be considered as being abnormal in this patient?

A.First degree atrio-ventricular block

B.Incomplete right bundle branch block

C.Left bundle branch block

D.QRS amplitude meeting criteria of left ventricular hypertrophy

E.Sinus bradycardia

Answer:Left bundle branch block

Explanation:

New LBBB is always pathological and never normal

Important for meLess important

The ECG from an athlete may have changes that would otherwise be considered pathological. Common ECG changes in athletes include sinus bradycardia, first degree AV block, incomplete right bundle branch block, early repolarization, and isolated QRS voltage criteria for left ventricular hypertrophy.

These findings are due to the cardiac muscle remodelling in response to persistent and prolonged exercise leading to hypertrophy.

Left bundle branch block is not a common ECG change in an athlete and should not be classed as a normal variation.

Sinus bradycardia is common in athletes as the remodelling of the cardiac muscle in response to prolonged exercise means they have larger stroke volumes. This means the heart can beat less frequently but provide the same output.

First degree AV block is the most common conduction disturbance seen in the ECGs of athletes; it occurs due to parasympathetic hyperactivity. The second most common is Mobitz I.

Incomplete right bundle branch block is commonly seen in athletes due to ventricular hypertrophy in response to aerobic exercise.

Isolated QRS voltage criteria for left ventricular hypertrophy is a common ECG finding in athletes again due to the remodelling and hypertrophy of cardiac muscle.

Question:

A 70-year-old man presents to the GP after experiencing symptoms of lightheadedness recently when he stands up from a seated position. His blood pressure was 130/90 mmHg when it was measured in a seated position.

Which of the following standing blood pressures best describes a diagnosis of orthostatic hypotension in this patient?

A.120/85 mmHg after 3 minutes of standing

B.120/85 mmHg after 5 minutes of standing

C.110/90 mmHg after 3 minutes of standing

D.110/90 mmHg after 5 minutes of standing

E.115/85 mmHg immediately after standing

Answer:110/90 mmHg after 3 minutes of standing

Explanation:

Orthostatic hypotension can be diagnosed when there is a drop in SBP of at least 20 mmHg and/or a drop in DBP of at least 10 mmHg after 3 minutes of standing

Important for meLess important

Orthostatic hypotension can be diagnosed when there is a drop in the systolic blood pressure of at least 20 mmHg and/or a drop in the diastolic blood pressure of at least 10 mmHg after 3 minutes of standing. It is important for orthostatic hypotension to be diagnosed and for its cause to be identified as it can lead to frequent falls. Orthostatic hypotension tends to affect the elderly population, which can cause significant morbidity and mortality.

Question:

A 63-year-old man presents with chest discomfort triggered by physical exertion, which is relieved by rest. His past medical history is significant for obesity and asthma.

He is prescribed sublingual glyceryl trinitrate (GTN), aspirin, atorvastatin, and diltiazem. His response to treatment is assessed at 4 weeks, at which point he reports that his symptoms still occur, but GTN terminates the episode.

He does not tolerate an increase in the dose of diltiazem due to peripheral oedema.

What would be the most appropriate addition to his treatment regimen?

A.Atenolol

B.Doxazosin

C.Isosorbide mononitrate

D.Nifedipine

E.Ramipril

Answer:Isosorbide mononitrate

Explanation:

For a patient with symptomatic stable angina on a calcium channel blocker but with a contraindication to a beta-blocker, the next line treatment should be long-acting nitrate, ivabradine, nicorandil or ranolazine

Important for meLess important

Isosorbide mononitrate is correct. This patient continues to have symptoms of stable angina despite prophylaxis with the maximum tolerated dose of a calcium channel blocker (diltiazem) so another prophylactic anti-anginal drug should be offered. The usual first choice would be to add a beta-blocker, but the patient has a history of asthma and so beta-blockers are contra-indicated. According to NICE guidance, the next most appropriate option would be a long-acting nitrate (e.g. isosorbide mononitrate), ivabradine, or nicorandil.

Atenolol is incorrect. As mentioned above, beta-blockers are contraindicated in this patient due to their history of asthma and also should not be co-prescribed with a rate-limiting calcium channel blocker.

Doxazosin is incorrect. This is an alpha-blocker and is not routinely used in the management of angina.

Nifedipine is incorrect. The patient is already taking a rate-limiting calcium channel blocker. Ordinarily, a switch to nifedipine (which is not rate-limiting) could be considered in order to safely add a beta-blocker. However, this patient has a history of asthma so beta-blockers are contra-indicated.

Ramipril is incorrect as this is an angiotensin-converting enzyme (ACE) inhibitor and is not routinely used in the management of angina.

Question:

A 36-year-old female with a history of ulcerative colitis is diagnosed as having pyoderma gangrenosum. She presented 4 days ago with a 3 cm lesion on her right shin which rapidly ulcerated and is now painful:

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What is the most appropriate management?

A.Topical hydrocortisone

B.Oral prednisolone

C.Surgical debridement

D.Topical tacrolimus

E.Intravenous pulsed methylprednisolone

Answer:Oral prednisolone

Explanation:

Topical therapy does have a role in pyoderma gangrenosum and it may seem intuitive to try this first before moving on to systemic treatment. However, pyoderma gangrenosum has the potential to evolve rapidly and for this reason oral prednisolone is usually given as initial treatment. For a review see BMJ 2006;333:181-184

Question:

You are asked to review an ECG of a 76-year-old who has been admitted for a left hemicolectomy:

© Image used on license from Dr Smith, University of Minnesota

What is the diagnosis?

A.Atrial flutter

B.Torsades de pointes (polymorphic ventricular tachycardia)

C.Atrial fibrillation

D.Left bundle branch block

E.Right bundle branch block

Answer:Atrial flutter

Explanation:

The atrial flutter waves ('sawtooth') are clearly seen on this ECG. The rate suggests 4:1 block is present.

Question:

A mother brings her 3-year-old son to your GP surgery. She has noticed that he has been itching his face, particularly around his mouth and that he has developed some 'spots and scabs' in the area. The patient does not appear systemically unwell or distressed. The child has a history of atopic eczema and viral-induced wheeze.

On examination of the child's face you note the presence of pustules and vesicles surrounding the mouth and nose area along with some honey-coloured plaques. You diagnose impetigo and prescribe topical fusidic acid as well as advising good hygiene measures.

The mother is concerned about sending the child to daycare. What do you advise?

A.Now that the patient is on treatment he may return to daycare

B.The patient must have been on treatment for 48h before returning to daycare

C.The patient must have been on treatment for 24h before returning to daycare

D.The patient must wait until 4 days following the appearance of the lesions before returning to daycare

E.The patient can return to daycare immediately because he feels well

Answer:The patient must have been on treatment for 48h before returning to daycare

Explanation:

Patients may return to school or work when they are no longer contagious which is when all lesions have crusted over or 48h after treatment starts

Important for meLess important

Patients with impetigo may return to school or daycare following 48h of antibiotic treatment or when all lesions have crusted over meaning the patient is no longer contagious.

It is advised that patients with measles or rubella must wait until 4 days following the onset of the rash to return to work or school.

Government advice on infection control in schools and childcare settings:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachmentdata/file/658507/Guidanceoninfectioncontrolinschools.pdf

Question:

A 35-year-old lady presents to cardiology for investigation of a pansystolic murmur. She has hypermobility of large and small joints bilaterally and marked striae on her abdomen and chest.

What is the most likely cause of this murmur?

A.Mitral regurgitation

B.Aortic stenosis

C.Mitral stenosis

D.Aortic regurgitation

E.Ventricular septal defect

Answer:Mitral regurgitation

Explanation:

Mitral regurgitation is associated with collagen disorders such as Marfan's Syndrome and Ehlers-Danlos syndrome

Important for meLess important

Widespread joint hypermobility along with skin changes indicated by striae should make you think of a collagen disorder - these findings are commonly present in Ehlers-Danlos syndrome.

Mitral valve prolapse and mitral regurgitation are associated with Marfan's and Ehlers-Danlos syndromes. Mitral regurgitation would produce a pansystolic murmur as described in the stem.

Aortic stenosis and ventricular septal defect would both produce systolic murmurs but do not have a known association with collagen disorders in the same way as mitral regurgitation.

Mitral stenosis would produce a presystolic (i.e. late diastolic) murmur and is not known to be associated with Ehlers-Danlos syndrome.

Aortic regurgitation would produce an early diastolic murmur.

Question:

A 62-year-old man presents with a lesion on the right side of his nose. He is unsure how long it has been there.

What is the most likely diagnosis?

A.Desmoplastic trichoepithelioma

B.Squamous cell carcinoma

C.Impetigo

D.Basal cell carcinoma

E.Actinic keratosis

Answer:Basal cell carcinoma

Explanation:

The rolled, pearly edges with telangiectasia surrounding a central crater make basal cell carcinoma the most likely diagnosis.

Question:

A 65-year-old gentleman is referred to neurology outpatients with arm pain, stiffness and imbalance. Following investigations he is diagnosed with degenerative cervical myelopathy. Unfortunately, he misses his next outpatient clinic due to admission with acute coronary syndrome. He attends his GP 2 months later and mentions his ongoing neurological symptoms. Which of the following is the most important next step in his care?

A.Refer to spinal surgery or neurosurgery

B.Refer for cervical nerve root injections

C.Commence neuropathic analgesia

D.Reassure the patient of his diagnosis

E.Refer for physiotherapy

Answer:Refer to spinal surgery or neurosurgery

Explanation:

Management of patients with cervical myelopathy should be by specialist spinal services (neurosurgery or orthopaedic spinal surgery). Decompressive surgery is the mainstay of treatment and has been shown to stop disease progression (B, false). Close observation is an option for mild stable disease, but anything progressive or more severe requires surgery to prevent further deterioration. Pre-operative physiotherapy should only be initiated by specialist services, as manipulation can cause more spinal cord damage.

The timing of surgery is important, as any existing spinal cord damage can be permanent. Treatment within 6 months offers the best chance of making a full recovery. At present most patients wait more than 2 years for a diagnosis [1].

Other incorrect options:

Neuropathic analgesia is important for symptomatic relief but will not prevent further cord damage.

Physiotherapy does not replace surgical opinion, it can in fact cause more spinal cord damage in patients yet to receive surgical treatment. It should therefore only be initiated by specialist services.

1. Behrbalk E, Salame K, Regev GJ, Keynan O, Boszczyk B, Lidar Z. Delayed diagnosis of cervical spondylotic myelopathy by primary care physicians. Neurosurg Focus. 2013 Jul;35(1):E1.

Question:

A 23-year-old primigravida patient at 5 weeks gestation presents with spotting and suprapubic pain. She also reports shoulder-tip pain and nausea. Observations show oxygen saturations of 98% in room air, blood pressure of 109/79 mmHg, heart rate of 107 bpm, and a temperature of 36.9ºC.

Investigations show:

Transvaginal Ultrasound Empty uterine cavity with tubal ring sign. Evidence of a 41 mm complex adnexal mass seen.

Hb 107 g/L (115 - 160)

Platelets 380 \* 109/L (150 - 400)

WBC 10.8 \* 109/L (4.0 - 11.0)

b-HCG 1650 IU/L (< 5)

What is the most appropriate management for this patient?

A.Adrenalectomy

B.Expectant management

C.Laparoscopic salpingectomy

D.Methotrexate

E.Ultrasound-guided potassium chloride injection

Answer:Laparoscopic salpingectomy

Explanation:

All ectopic pregnancies >35 mm in size or with a serum B-hCG >5,000IU/L should be managed surgically

Important for meLess important

This patient presents with classical symptoms of an ectopic pregnancy- vaginal bleeding and referred shoulder tip pain. The pain is referred to the shoulder tip due to irritation of the diaphragm by free fluid from the ectopic within the peritoneal cavity. In addition, her serum b-hCG is elevated, and there are confirmatory signs of a tubal ectopic on her ultrasound- namely, the mass exceeding 35mm and tubal ring sign. As such, she should be managed surgically with a laparoscopic salpingectomy.

Adrenalectomy is incorrect. The 'complex adnexal mass' refers to the ectopic pregnancy implanted in the fallopian tube - 'adnexal' means near the ovaries, uterus, and fallopian tubes, and is unrelated to the adrenal glands.

Expectant management is an option for patients who do not have a significantly elevated b-hCG or have had confirmed foetal demise. As this patient has such an elevated serum b-hCG and the mass exceeds 35mm in size, this would not be the appropriate management for her.

Methotrexate can be used to medically manage ectopic pregnancies if the mass is <35mm in size or the patient's serum B-hCG is below 5,000IU/L.

An alternative to methotrexate for medical management is with ultrasound-guided potassium chloride injection. This is a viable alternative in live ectopic pregnancies that meet the same criteria as for methotrexate administration but is not current UK standard practice.

Question:

A 44-year-old woman presents with a 3-month history of nipple discharge with the appearance of milk. A systematic enquiry was otherwise unremarkable. She has a past medical history of schizophrenia for which she takes olanzapine. She also states that she smokes cannabis on a daily basis.

Blood results are as follows:

Thyroid stimulating hormone (TSH) 2.8 mU/L (0.5-5.5)

Free thyroxine (T4) 4.2 pmol/L (9.0 - 18)

Prolactin 165 ng/mL (<25)

Oestradiol 22 pmol/L (45 - 1461)

Lutenising hormone 1.6 IU/L (2.1 - 103)

Follicular stimulating hormone 1.2 IU/L (1.8 - 22.5)

What is the most likely cause of nipple discharge in this patient?

A.Cannabis

B.Non-functioning pituitary adenoma

C.Olanzapine

D.Pregnancy

E.Prolactinoma

Answer:Non-functioning pituitary adenoma

Explanation:

The presence of an elevated prolactin level along with secondary hypothyroidism and hypogonadism is indicative of stalk compression is consistent with a non-functioning pituitary adenoma

Important for meLess important

The patient has hyperprolactinaemia with associated galactorrhoea. The causes of hyperprolactinaemia are wide. It is important to note that the patient also has secondary hypothyroidism (low T4 and inappropriately normal TSH) and hypogonadotrophic hypogonadism.

Non-functioning pituitary adenoma is correct. Non-functioning pituitary adenomas can result in panhypopituitarism due to infiltration of the normal pituitary tissue. Compression of the pituitary stalk can result in hyperprolactinaemia due to decreased transport of dopamine from the hypothalamus to the pituitary. Dopamine acts to suppress prolactin release. Thus a non-functioning pituitary adenoma accounts for all the biochemical abnormalities present in this case.

Cannabis is incorrect. Although there is weak evidence to show that cannabis can raise prolactin levels, it would not be expected to cause secondary hypothyroidism or hypogonadotrophic hypogonadism.

Olanzapine is incorrect. Although olanzapine is a well-known cause of hyperprolactinaemia and hypogonadotrophic hypogonadism, it is only very rarely associated with secondary hypothyroidism, making a non-functioning pituitary adenoma the more likely diagnosis.

Pregnancy is incorrect. Although pregnancy can result in hyperprolactinaemia, it is not associated with hypogonadotrophic hypogonadism or secondary hypothyroidism both of which are present in this case. Oestrogen levels increase steadily during pregnancy and reach their peak in the third trimester.

Prolactinoma is incorrect. The degree of hyperprolactinemia usually correlates with the size of prolactinoma. Although a macroprolactinoma causing compression of the pituitary gland remains within the differential diagnosis, this is less likely given the only very modest rise in prolactin levels. Macroprolactinomas are usually associated with serum prolactin levels >250 ng/ml. A serum prolactin level >500 ng/ml makes the diagnosis of macroprolactinoma almost certain.

Question:

A 26-year-old male with a past medical history of COPD due to alpha-1 antitrypsin deficiency presents to the emergency department with pleuritic chest pain.

The team performs a chest x-ray that shows a pneumothorax with a rim of air of 0.8cm.

Which one of the following would be the appropriate management plan?

A.Discharge and follow-up as an outpatient

B.Discharge with lifestyle advice

C.Insert a chest drain

D.Attempt aspiration with a 14G cannula

E.Give oxygen and admit him for 24 hours

Answer:Give oxygen and admit him for 24 hours

Explanation:

In a secondary pneumothorax <1cm, admit and give oxygen for 24 hours and review

Important for meLess important

The correct answer is to give oxygen and admit him for 24 hours. Don't be tricked by the young age of this patient, given his past medical history, he is suffering from a secondary pneumothorax. British Thoracic Society guidelines state that in secondary pneumothorax <1cm, you should admit and give oxygen for 24 hours and review. This is indicated because usually, patients will have an already deranged respiratory function due to their disease.

Discharge and follow-up as an outpatient is indicated in patients with a primary pneumothorax with a rim of air < 2cm.

Discharge with lifestyle advice is not an option for any pneumothorax, but lifestyle advice should be given anyway, such as avoid smoking to reduce the risk of further episodes.

Insertion of a chest drain is appropriate in a secondary pneumothorax if the patient is > 50 years old and the rim of air is > 2cm and/or the patient is short of breath.

An attempt of aspiration with a 14G cannula is done in a patient with primary pneumothorax and rim of air >2cm.

Question:

A 21-year-old presents to the GP with headaches. These last most of the day every day however she is able to go about her usual routine. She also reports clumsiness, bumping into things on the periphery of her vision. This has been gradually worsening. Otherwise, she feels well. She takes the combined oral contraceptive pill (COCP), reporting that she had always had infrequent periods, and not had a period for a year or so prior to starting this. Examination reveals a BMI of 19kg/m², vital signs within normal limits, and normal neurological examination.

What is the most likely cause of her symptoms?

A.Idiopathic intracranial hypertension

B.Migraine

C.Multiple sclerosis

D.Myopia

E.Prolactinoma

Answer:Prolactinoma

Explanation:

Headaches, amenorrhoea, visual field defects → ?prolactinoma

Important for meLess important

Prolactinoma is the correct answer. This patient has presented with bitemporal hemianopia (a loss of the peripheral visual field), headache and a history of amenorrhoea. Whilst the neurological examination is ‘normal’ here, it may be difficult to detect early visual field deficits with a crude cranial nerve examination and therefore, given the history, prolactinoma should be suspected, and a formal assessment of visual fields conducted. The secretion of high levels of prolactin from a prolactinoma can lead to hypogonadotropic hypogonadism through suppression of GnRH (gonadotrophin-releasing hormone) and can therefore present as amenorrhea and infertility. As a prolactinoma grows, the pituitary may compress the optic chiasm, leading to a bilateral loss of the temporal visual fields (bitemporal hemianopia).

idiopathic intracranial hypertension (IIH) is not the most likely explanation for the symptoms experienced here. Whilst it can cause headaches and visual disturbance as seen in this case, the visual disturbance follows a different pattern, more commonly from pressure on the optic nerve, leading to painful eye movements, reduced colour vision, visual obscurations and gradual loss of vision. Additionally, IIH would not cause amenorrhea and is frequently associated with a high BMI, unlike in this case.

Migraine is not the most likely explanation for the symptoms experienced here. Whilst this is a common cause of a headache and may be associated with visual symptoms, the headache is usually debilitating and associated with nausea, photophobia and difficulty in continuing the normal routine. These are usually episodic rather than pervasive as experienced here. The visual symptoms experienced with migraines again are episodic (lasting less than an hour) and often occur as an aura before the headache. They would not persist nor would they progress. The amenorrhea described here cannot be explained by migraine.

Multiple sclerosis (MS) is not the most likely explanation for this patient’s symptoms. In MS, the visual disturbance is more likely to result from damage to the cranial nerves, resulting in diplopia or temporary loss of vision (nerves to ocular muscles and optic nerve respectively) rather than the bitemporal hemianopia experienced by this patient. The patient may also have a history of other focal neurological signs. Headache in MS is more likely to be reported as an ache behind the eyes worsened with eye movement, resulting from optic nerve inflammation (optic neuritis). Whilst co-existent amenorrhoea is possible, this is not explained by MS.

Question:

A 40-year-old woman presents to her GP with dysuria. On further questioning, she reports that the pain is generally concentrated in the suprapubic area. She hasn't noticed any other symptoms.

As part of the examination, the GP takes a urine dipstick. This shows ++ leukocytes, +++ nitrites and ++ blood. Other than mild pyrexia (37.9 ºC) the examination and observations are normal. She occasionally drinks alcohol and is a non-smoker.

Given the likely diagnosis, what is the most appropriate course of action?

A.Discharge with advice and safety netting

B.Oral nitrofurantoin for 3 days

C.Refer for cystoscopy on a 2 week wait pathway

D.Refer to secondary care for further assessment

E.Send MSU for culture and prescribe nitrofurantoin for 3 days

Answer:Send MSU for culture and prescribe nitrofurantoin for 3 days

Explanation:

Send an MSU for all women with a suspected UTI if associated with visible or non-visible haematuria

Important for meLess important

Send MSU for culture and prescribe nitrofurantoin for 3 days is correct. This patient has presented with symptoms indicative of a lower urinary tract infection (UTI). This is shown from the history of dysuria and dipstick positive for nitrites and leukocytes. However, the presence of microscopic haematuria raises the possibility of an atypical organism. Therefore it is recommended to send an MSU sample for culture and sensitivities for women with a UTI combined with haematuria. In the meantime prescribing normal broad-spectrum antibiotics is a good idea.

Discharge with advice and safety netting is incorrect. This patient has presented with a UTI. If the patient has presented to their GP, symptoms will be bad enough to warrant treatment. Furthermore, prompt treatment will prevent complications such as pyelonephritis. Therefore this answer is incorrect.

Oral nitrofurantoin for 3 days is incorrect. This patient is presenting with signs of cystitis. Normally a short course of trimethoprim or nitrofurantoin would be a good treatment for this condition. However, the presence of haematuria can indicate an atypical organism; therefore, you need to send an MSU for culture and sensitivities as well as prescribe normal antibiotics.

Refer for 2 week wait cystoscopy is incorrect. This patient has presented with signs of a lower UTI. The urine dipstick has revealed microscopic haematuria, which can be a sign of bladder cancer in some patients. However, this would be highly unlikely in a person under the age of 45 who is a non-smoker. Therefore the haematuria can be investigated in the context of a UTI using a urine culture.

Referral to secondary care for further assessment is incorrect. This patient has presented with symptoms of a lower UTI. A review in the hospital would not be necessary for simple cystitis. A secondary care referral would be appropriate for suspected pyelonephritis or sepsis.

Question:

A 25-year-old man presents to the emergency department with a new rash. He has a history of HIV and around 5 days ago was prescribed prophylactic co-trimoxazole as his CD4 count was 323 cells per cubic millimetre.

His temperature is 39.4ºC, his heart rate is 105 bpm, and his blood pressure is 85/64 mmHg. On examination, a diffuse erythematous maculopapular rash is present. When rubbing the rash, new blisters form and the skin slides off. The rash covers 56% of his total body surface area, including the oral mucosa.

What term best describes this finding?

A.Braverman's sign

B.Hutchinson's sign

C.Koebner phenomenon

D.Nikolsky's sign

E.Russell's sign

Answer:Nikolsky's sign

Explanation:

Stevens-Johnson syndrome exhibits Nikolsky sign in erythematous areas - blisters and erosions appear when the skin is rubbed gently

Important for meLess important

The presence of a maculopapular, erythematous, and diffuse rash following the administration of a new drug should raise suspicion of a drug reaction, in particular, Stevens-Johnson syndrome (SJS) if mucosal involvement is present. Sulphonamides including co-trimoxazole (trimethoprim/sulfamethoxazole) are known to cause SJS in susceptible individuals.

Nikolsky's sign is correct as this describes exfoliation and formation of blisters following rubbing the skin. This sign is nearly always present in SJS and toxic epidermal necrolysis (TEN).

Braverman's sign is incorrect. This describes the presence of telangiectasias (small, dilated blood vessels) around nails. They are typically associated with connective tissue diseases such as dermatomyositis.

Hutchinson's sign is incorrect as this describes the presence of a vesicular rash on the tip or side of the nose in herpes zoster ophthalmicus, caused by the reactivation of the varicella zoster virus in the trigeminal nerve. Its presence suggests ocular involvement.

Koebner phenomenon is incorrect as this describes the appearance of skin lesions on sites of trauma, such as scratching and injection. It is commonly seen in psoriasis, where the Koebner phenomenon would lead to the development of new psoriatic plaques at the trauma site.

Russell's sign is incorrect as this describes the presence of calluses on the knuckles or back of the hand due to repeated self-induced vomiting. This is primarily seen in bulimia nervosa.

Question:

A 78-year-old man presents to the emergency department with left-sided hemiparesis and a reduced conscious level. He has a history of hypertension, atrial fibrillation, and diabetes. He takes ramipril, amlodipine, dabigatran, and metformin.

On examination, his Glasgow coma scale is 13/15 and he has a facial weakness, slurred speech, and reduced power of his left upper and lower limb. An urgent CT scan is performed and shows a large right intra-cerebral hemorrhage.

What would be the single best initial treatment option?

A.Andexanet alfa

B.Haemodialysis

C.Idarucizumab

D.Protamine sulphate

E.Vitamin K

Answer:Idarucizumab

Explanation:

Bleeding on dabigatran? Can use idarucizumab to reverse

Important for meLess important

Dabigatran can be reversed by using idarucizumab which binds to and inactivates dabigatran and its metabolites. It's use should be considered in patients with symptomatic intracranial bleeding or uncontrolled bleeding with haemodynamic instability.

Andexanet alfa is a recombinant form of factor Xa, used for reversing bleeding in patients taking rivaroxaban or apixaban.

Haemodialysis should be considered if a patient has severe renal failure as dabigatran may take days to clear and idarucizumab has a relatively short half-life. In this case, the patient did not have renal failure and therefore idarucizumab is the correct option.

Protamine sulphate is used as a reversal agent in patients bleeding on heparin, enoxaparin or dalteparin.

Vitamin K is used for reversal of a raised INR from warfarin, it is not used for NOAC therapy.

Question:

A 34-year-old woman presents to the Emergency Department with sharp, central chest pain. The pain is aggravated when lying flat and eases when leaning forward. ECG shows widespread ST elevation in all leads.

Which condition would predispose this presentation?

A.Atrial fibrillation

B.Atrial septal defect

C.Dermatomyositis

D.Familial hypercholesterolaemia

E.Systemic lupus erythematosus

Answer:Systemic lupus erythematosus

Explanation:

Systemic lupus erythematosus (SLE) is a risk factor for acute pericarditis

Important for meLess important

The patient in the vignette demonstrates the classic pain associated with acute pericarditis, and the ECG findings corroborate this. Acute pericarditis is inflammation of the pericardium and is associated with many precipitants, including auto-immune inflammatory conditions such as SLE, scleroderma and rheumatoid arthritis. Other causes include myocardial infarction, viral infection, TB and uraemia.

Atrial fibrillation is associated with stroke due to its predisposition for the formation of clots. It is not associated with pericarditis.

Atrial septal defects confer an increased risk of infective endocarditis and pulmonary hypertension, but not pericarditis.

Dermatomyositis, although an autoimmune inflammatory condition, is seldom associated with pericarditis. However, myocarditis and heart failure are rare complications of dermatomyositis.

Familial hypercholesterolemia increases the risk of ischaemic heart disease and myocardial infarction. Although myocardial infarction can be a cause of pericarditis, hypercholesterolemia in itself is not a direct cause of pericarditis.

Question:

A 32-year-old multiparous woman presents at 36 weeks gestation in established labour. She has recently emigrated from a low-income country. No history of prenatal care or screening tests is established. The patient has an uneventful vaginal delivery of a 3.2kg female. Soon after birth, the baby develops fever, tachycardia and respiratory distress. What is the most likely cause?

A.Herpes simplex infection

B.Hepatitis B transmission

C.Group B septicaemia

D.Toxoplasmosis infection

E.Vertical transmission of HIV

Answer:Group B septicaemia

Explanation:

Group B streptococcus infection is the most frequent cause of severe early-onset (< 7 days) infection in newborn infants.

Question:

A 65-year-old man presents with difficulty swallowing which has been present for 6 months and has been getting worse over the past few weeks. The dysphagia occurs to both solids and fluids equally. He has also noticed some chest pains recently, especially after eating. A barium swallow shows a dilated oesophagus that tapers at the lower oesophageal sphincter.

What is the most likely diagnosis?

A.Pharyngeal pouch

B.Oesophageal spasm

C.Achalasia

D.Oesophageal carcinoma

E.Benign oesophageal stricture

Answer:Achalasia

Explanation:

Dysphagia equally to both solids and liquids from the outset is suggestive of achalasia. A barium swallow which shows a grossly expanded oesophagus that tapers at the lower oesophageal sphincter ('bird's beak' appearance) confirms the diagnosis.

Question:

A 17-year-old boy visits his general practitioner as he is worried that he has not begun puberty. He reports that he has no growth of pubic, facial or underarm hair. He also reports that he has no sense of smell.

Examination reveals small testes and penis. His height is recorded as 6 foot 1 inch (185cm).

What is the most likely diagnosis?

A.Constitutional delay

B.Cystic fibrosis

C.Growth hormone deficiency

D.Kallman syndrome

E.Klinefelter syndrome

Answer:Kallman syndrome

Explanation:

Kallman syndrome patients can present with anosmia

Important for meLess important

Puberty in a male is expected to begin between the ages of 9-14 (9-15 in some texts) and is recognised as delayed if there are no signs of puberty by age 14 (15 in some texts). Early signs of puberty in a male include testicular enlargement, followed by the development of pubic hair and growth of the penis. This question is testing your knowledge of the causes of delayed puberty in a male. Kallman's syndrome is an X-linked recessive condition, causing failure of GnRH (gonadotropin-releasing hormone) secreting neurons migrating to the hypothalamus. This results in hypogonadotropic hypogonadism. It presents with delayed puberty and anosmia in a male, who are often average/ above average height. A hormone profile would show low testosterone with low (or inappropriately normal) luteinising hormone (LH) and follicle-stimulating hormone (FSH).

Constitutional delay in growth and maturation is the most common cause of delayed puberty in males. It could be the case in this clinical scenario, were it not for the anosmia. Males with constitutional delay are generally healthy in all other aspects and their is very often a family history of one or both parents experiencing delayed puberty.

Cystic fibrosis can cause delayed puberty in males. However, there would likely be more in the history to suggest a diagnosis of cystic fibrosis (e.g. frequent chest infections). Furthermore, cystic fibrosis in now screened for in all babies with the heel-prick test, so it is unusual to present undiagnosed in a 17-year-old.

Although another important differential for delayed puberty in males, growth hormone deficiency is unlikely to be the case in a patient who is above average height. Furthermore, it would not explain the anosmia.

Klinefelter syndrome is a genetic condition with karyotype 47 XXY. It results in hyper-gonadotropic hypogonadism. Patients are generally very tall, and can present with small testes and lack of secondary sexual characteristics. They may often have mild learning difficulties. Again, this would not account for the anosmia in this case.

Question:

A 57-year-old man is brought to the emergency department via ambulance after collapsing at work. On admission, his GCS is 13 out of 15. He is sent for an urgent head CT which shows a collection of blood in the subarachnoid space, midline shift, and hydrocephalus. Whilst the patient is being scheduled and prepared for surgery, he becomes haemodynamically unstable and drops his GCS further to 8 out of 15.

What is most likely to been seen on an ECG?

A.Absence of P waves

B.Peaked T waves

C.Polymorphic ventricular tachycardia

D.Normal ECG

E.Prolonged QRS duration and S wave in V1

Answer:Polymorphic ventricular tachycardia

Explanation:

Subarachnoid haemorrhage is a cause of torsdaes de pointes

Important for meLess important

This is a presentation of torsades de pointes secondary to a subarachnoid haemorrhage - a rare complication but important to be aware of. This is an example of a spontaneous subarachnoid haemorrhage as it is not secondary to trauma. The typical presentation of a subarachnoid haemorrhage is sudden onset, severe headache, sometimes described as 'like being hit over the head with a bat'. Patients may also have meningism, nausea, vomiting, and seizures. The management for subarachnoid haemorrhage depends on the cause; if there is an aneurysm the treatment is the insertion of a coil to prevent further bleeding. If there is no cause identified and the patient is stable, medical management is often used with nimodipine. In this case, the patient was being taken for surgery to insert an external ventricular drain as he has hydrocephalus.

Torsades de pointes is a life-threatening form of ventricular tachycardia and QT prolongation where the QRS vary in size and duration (hence the name polymorphic). The most common cause of torsades de pointes is medications - for example, tricyclic antidepressants, erythromycin, antipsychotics, and several more. Other, rarer causes, include hypothermia, electrolyte abnormalities, myocarditis, congenital cardiac syndromes, and subarachnoid haemorrhages. The management of torsades de pointes is the same regardless of the cause - IV magnesium sulphate.

The absence of P waves is a feature of atrial fibrillation - a common arrhythmia caused by a disruption in electrical activity in the atrium. Causes include ischaemic heart disease, structural heart disease, electrolyte disturbances, hyperthyroidism, and medications. It is often asymptomatic. Atrial fibrillation is not associated with subarachnoid haemorrhage, and rarely causes haemodynamic instability.

Peaked T waves are a feature of severe hyperkalaemia (>6.0 mmol/L). It can be caused by medications such as spironolactone and ACE inhibitors, acute kidney injury, or conditions causing acidosis. Subarachnoid haemorrhage is not associated with hyperkalaemia.

A unremarkable ECG is unlikely in this scenario given that torsdaes de pointes is the likely diagnosis.

Prolonged QRS duration and S wave in V1 is a feature of a left bundle branch block. Causes of this include an anterior myocardial infarction, aortic stenosis, cardiomyopathy, and ischaemic heart disease. It is not associated with subarachnoid haemorrhage.

Question:

A 10-year-old boy presents with a 2 day history of abdominal pain and anorexia. On examination he is tender over McBurney's point with rebound and percussion tenderness. You diagnose acute appendicitis and the registrar books and consents for a open appendectomy.

Bloods on admission show:

Hb 122 g/l

Platelets 298 \* 109/l

WBC 8.9 \* 109/l

CRP 3 mg/l

What must be done prior to taking the patient to theatre?

A.CT scan of the abdomen

B.USS abdomen

C.Give prophylactic IV antibiotics

D.Regular paracetamol

E.None of the above

Answer:Give prophylactic IV antibiotics

Explanation:

Prophylactic IV antibiotics are given prior to appendicectomy

Important for meLess important

Current guidance published by SIGN recommend that upon diagnosis of acute appendicitis; pre-operative broad spectrum IV antibiotics should be commenced to reduce the incidence of post-operative surgical site infection i.e. wound infections, collections.

CT scanning in children is rarely indicated in cases of suspected acute appendicitis in children due to the risks of radiation. Current guidance recommends starting broad spectrum IV therapy in cases of suspected acute appendicitis, there is no consensus following a systematic review on the duration of treatment (Scan J Surg. 2014 Mar; 103(1): 14-20), some advocate 24-48hr of IV antibiotic therapy. In clinical practice, the patient is commenced on IV antibiotics (e.g. Co-amoxiclav TDS pending no penicillin allergy) as a regular prescription when they are diagnosed with acute appendicitis until they are taken to theatre for an appendectomy.

In instance where antibiotics are not commenced on the ward, a dose of antibiotics is typically given on induction. In this vignette, the patient is on the ward and has been diagnosed with acute appendicitis. The proper action to take as a junior doctor would be to commence regular IV antibiotics and not a 'one-off' dose as the patient may be taken to theatre at any time if placed on the emergency operating list.

Question:

A 55-year-old obese male presents to the emergency department reporting acute onset epigastric pain, associated with sweating, nausea, and breathlessness. He has a 30 pack-year smoking history and has a known history of hypertension and raised cholesterol.

The pain started about 1 hour ago while he was carrying heavy shopping, and has not improved despite taking over-the-counter antacids and paracetamol at home.

What is the most appropriate initial investigation?

A.Abdominal ultrasound

B.Abdominal x-ray

C.Chest x-ray

D.ECG

E.Serum amylase

Answer:ECG

Explanation:

Patients with acute coronary syndrome may present with upper abdominal pain

Important for meLess important

The patient has several risk factors for acute coronary syndrome (ACS) - obesity, smoking history, hypertension, and hypercholesterolemia. The clinical features are also consistent with a diagnosis of ACS. An ECG is therefore required urgently to aid this diagnosis and to identify which coronary territories there may be pathology, as well as to guide immediate management.

An abdominal ultrasound may be useful to further investigate his symptoms and is particularly useful as a non-invasive test to help in the differential diagnosis of abdominal pain. This can be used to assess the soft tissues including liver, gallbladder, pancreas, appendix, and abdominal aorta, and it is also used within abdominal trauma to identify signs of haemorrhage. Despite its uses, other more urgent investigations should be done initially in this patient.

An abdominal x-ray may show signs of bowel obstruction, perforation, or inflammatory bowel disease. An abdominal x-ray is unlikely to be a useful test for this case, so would not be requested at this stage.

A chest x-ray is likely to be requested for this patient due to the history of breathlessness, particularly as he is a smoker, putting him at higher risk of infections, cardiac failure and malignancy. However, this would not be done as the first investigation since you are suspecting ACS.

Blood tests (e.g. serum amylase) are useful to investigate the cause of his abdominal pain, but they should not be done as the first investigation. Serum amylase is typically raised in pancreatitis. It may also be raised in other conditions, including pancreatic cancer, acute appendicitis, pregnancy, perforated ulcer, or intestinal obstruction.

Question:

A 24-year-old student presents due to some lesions on his lower abdomen. These have been present for the past six weeks. Initially, there was one lesion but since that time more lesions have appeared. On examination around 10 lesions are seen; they are raised, around 1-2mm in diameter and have an umbilicated appearance. What is the most likely diagnosis?

A.Genital warts

B.Lichen planus

C.Keratosis pilaris

D.Molluscum contagiosum

E.Folliculitis

Answer:Molluscum contagiosum

Explanation:

This is a classical description of molluscum contagiosum, although it is most commonly seen in children.

Question:

A 55-year-old female presents to the emergency department with an eight-hour history of heart palpitations. She has a heart rate of 200 beats per minute and an ECG shows regular QRS complexes of 0.08 seconds. She has not had any chest pain or episodes of syncope and has no signs of heart failure. Her blood pressure is 130/90 mmHg and her oxygen saturations are 97% on air. What should you do first?

A.Carotid sinus massage

B.Adenosine 6mg

C.Adenosine 12mg

D.Amiodarone 300mg

E.Atropine 0.5mg

Answer:Carotid sinus massage

Explanation:

This female has a regular narrow complex tachycardia with no adverse features. The first step in this instance would, therefore, be to try vagal manoeuvres, for example, a carotid sinus massage. If this is unsuccessful, IV adenosine should be given (6mg at first, followed by 12mg if no response, and then by a further 18mg if again no response). If this is unsuccessful consider atrial flutter as the diagnosis and treat as appropriate.

Amiodarone can be used for rhythm control if the patients' narrow complex tachycardia is due to atrial fibrillation or atrial flutter. It could also be used in the management of broad complex tachycardia.

Atropine is used in the management of bradycardia.

Question:

A 21-year-old woman presents to her GP, seeking help for anxiety. She finds her office-based job stressful, especially the aspects involving discussions with colleagues and bosses, fearing criticism. Outside of work, she often finds herself worrying about what her friends think of her, and increasingly forgoes social interaction with them as a result. She mentions that she thinks quite lowly of herself and does not have much self-esteem.

What best fits her diagnosis?

A.Antisocial personality disorder

B.Avoidant personality disorder

C.Borderline personality disorder

D.Dependent personality disorder

E.Obsessive-compulsive personality disorder

Answer:Avoidant personality disorder

Explanation:

Patients with avoidant personality disorder are fearful of criticism, being unliked, rejection and ridicule

Important for meLess important

This patient's history is a classic example of avoidant personality disorder. These patients generally avoid occupational, or social, activities with significant interpersonal contact, due to fear of criticism/rejection. They are preoccupied with ideas that they are being criticised or rejected in social situations and have an inferior view of themselves. Typically, they isolate themselves socially but actually crave social contact.

Patients with antisocial personality disorder display a failure to conform to social norms with respect to lawful behaviours - repeatedly performing acts that are grounds for arrest. These patients may use deception, repeatedly lie, and show impulsiveness and a failure to plan ahead; they typically demonstrate a lack of remorse for their actions.

Borderline personality disorder, also known as emotionally unstable personality disorder, would present differently. These patients make efforts to avoid real or imagined abandonment. They often have unstable interpersonal relationships and an unstable self-image. They demonstrate impulsivity with regards to potentially self-damaging behaviours, such as substance abuse, sexual intercourse and spending. They may also display recurrent suicidal behaviour.

Dependent personality disorder presents with difficulties making decisions about everyday decisions without excessive reassurance from others. These patients have a need for others to assume responsibility for major areas of their lives. They generally display a lack of initiative and have unrealistic fears of being left to care for themselves. They typically seek out a new relationship as soon as a previous relationship ends.

Obsessive-compulsive personality disorder, as the name suggests, presents with a preoccupation with details, rules, lists and order - to the point that the key part of the actual activity itself is gone. These patients are typically dedicated to their work and efficiency, eliminating spare time activities. They are generally unwilling to delegate work to others, unless they can be sure that the others will perform the work exactly as they wish it to be done.

Question:

An 87-year-old woman presents to the emergency department with profuse sweating and palpitations. The symptoms started two hours ago and do not seem to improve. She has a past medical history of type two diabetes mellitus and osteoporosis.

Her heart rate is 133/min and regular, respiratory rate 21/min, blood pressure 140/92 mmHg and temperature 36.8 ºC. On examination, she looks pale and short of breath but is normal for the rest.

What is the most likely diagnosis?

A.Atrial fibrillation

B.Myocardial infarction

C.Pancreatitis

D.Pneumonia

E.Ruptured aortic aneurysm

Answer:Myocardial infarction

Explanation:

Elderly patients with a MI can present without chest pain

Important for meLess important

The correct answer is myocardial infarction. This patient presents with sweating, palpitations, shortness of breath, tachycardia and tachypnoea. These are all classical features of myocardial infarction, even if the patient does not complain of chest pain. It is of paramount importance to remember that elderly patients might not present with the classical features of myocardial infarction (MI). Even more importantly, diabetic patients (as this one) and women are less likely to experience the classical chest pain accompanying myocardial infarctions. Hence, you should always keep it in mind as a differential for each patient presenting with non-specific symptoms.

Atrial fibrillation is a good differential but it is ruled out by the regular pulse on examination. One of the defining features of atrial fibrillation is an irregularly irregular pulse, which is absent in this case.

Pancreatitis usually presents with severe epigastric pain radiating to the back, classically relieved by leaning forward, usually accompanied by vomiting. This patient does not have any of these features, making the diagnosis unlikely.

Pneumonia is always a good differential in an elderly patient, but in this case, the patient does not have a productive cough and pyrexia, two cardinal features of the disease, making the diagnosis unlikely.

A ruptured aortic aneurysm would present with pain and shock, secondary to the loss of blood volume. Even if the heart rate is high, this patient's blood pressure is elevated, and she is hemodynamically stable, making the diagnosis unlikely.

Question:

Burkitt's lymphoma is associated with which one of the following genetic changes:

A.Cyclin D1-IGH gene translocation

B.TEL-JAK2 gene translocation

C.Bcl-2 gene translocation

D.C-myc gene translocation

E.BCR-Abl1 gene translocation

Answer:C-myc gene translocation

Explanation:

Burkitt's lymphoma - c-myc gene translocation

Important for meLess important

Question:

A 14-year-old male being investigated for iron-deficiency anaemia is found to have numerous polyps in his jejunum. On examination he is also noted to have pigmented lesions on his palms and soles. What is the likely diagnosis?

A.Hereditary non-polyposis colorectal carcinoma

B.Gardner's syndrome

C.Familial adenomatous polyposis

D.Peutz-Jeghers syndrome

E.Hereditary haemorrhagic telangiectasia

Answer:Peutz-Jeghers syndrome

Explanation:

Hereditary haemorrhagic telangiectasia is associated with mucocutaneous lesions and iron-deficiency anaemia but intestinal polyps are not a feature

Question:

A 47-year-old is seen in the heart failure clinic as part of his annual review. His current medication controls his symptoms, and he generally feels well. He exercises regularly and has been successfully losing weight with a diet program. He is also vaccinated yearly as part of his wider lifestyle management.

What is the most likely vaccination he is receiving for his heart failure?

A.HepB

B.Influenza

C.MenACWY

D.Pneumococcal

E.Shingles

Answer:Influenza

Explanation:

As part of the broad lifestyle approach to heart failure, annual influenza vaccine should be offered

Important for meLess important

Influenza is the correct answer. Patients above 50 should have the yearly influenza vaccination. This patient is below 50 but should still receive the influenza vaccination. This is part of the wider lifestyle approach to heart failure.

HepB is incorrect. This is the vaccination for hepatitis B. It is routinely given as part of the childhood vaccination programme and can be given to healthcare workers as part of their health and safety at work. It has no role in managing heart failure, so it is not indicated for this patient for his heart failure, although it may be given for other reasons.

Pneumococcal is incorrect. The pneumococcal vaccination is given for heart failure but as a one-off vaccination, not yearly. The question asks about a yearly vaccination he would receive, which makes this an incorrect option.

Shingles is incorrect. This is given to individuals over 70, and as it has no role in heart failure, there would be no reason to give it to this patient.

MenACWY is incorrect. This is the vaccination for Meningitis. Particularly meningococcal strains A, C, W and Y. It is part of routine vaccinations in teenagers; it is important to students going to university for the first time. Again, it has no role in heart failure, so there is no reason to give it to this patient for his heart failure.

Question:

A 27-year-old is found to have a blood pressure of 165/111 mmHg and ++proteinuria on urinalysis on a routine visit to the antenatal clinic. Her consulting doctor is worried about pre-eclampsia and admits her to the obstetrics assessment unit. She has recently moved here and therefore her medical notes are not accessible. She is quite fit and well and does not take any medications apart from her blue and brown inhalers. She has recently completed a 5-day course of steroids after being hospitalised for a severe exacerbation of asthma.

Which is the choice of drug for managing her hypertension?

A.Labetalol

B.Nifedipine

C.Ramipril

D.Hydralazine

E.Methyldopa

Answer:Nifedipine

Explanation:

Nifedipine is the first line anti-hypertensive for pre-eclampsia in women with severe asthma

Important for meLess important

From the history, it is obvious that this lady suffers from severe asthma.

Labetalol is a beta blocker, and although first line anti-hypertensive for pre-eclampsia, is contraindicated in asthmatics.

Ramipril use during pregnancy has been linked to an increased risk of birth defects in babies.

Methyldopa and hydralazine are used to treat hypertension in pre-eclampsia but neither one is used as first line management.

Question:

You are working as a FY1 in the emergency department when you attend a mother and her 4-year-old child. She complains that her child has had a sore throat which has rapidly become worse over the last 3 hours, a high fever and has begun drooling from the sides of his mouth. His mother admits he has missed some of his vaccinations as she read a story on their negative effects, but is unsure which were omitted. On examination the child is sitting on the examination couch leaning forward and refusing to move. He is pyrexial (38.1C) with overt drooling from the sides of his mouth. He is refusing to talk and a soft high pitched sound is just audible on inspiration. What is the most likely causative agent underlying this child's condition?

A.Streptococcus pyogenes

B.Parainfluenza virus

C.Respiratory syncytial virus

D.Haemophilus influenza type B

E.Streptococcus pneumoniae

Answer:Haemophilus influenza type B

Explanation:

Acute epiglottitis is caused by Haemophilus influenzae type B

Important for meLess important

This child is presenting with a classic case of acute epiglottitis, which is more likely considering there is a chance he has not been vaccinated against Haemophilus influenza type B. This is the most common cause of this condition, with other less common causes being Streptococcus pyogenes and Streptococcus pneumoniae. Parainfluenza virus is the cause of croup, and RSV is the cause of bronchiolitis in children.

Question:

A 55-year-old man complains of palpitations. Examination of his cardiorespiratory system is unremarkable. A resting ECG is therefore ordered prior to arranging a 24-hour tape.

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What is shown on the ECG?

A.Normal ECG

B.Wolff-Parkinson White syndrome

C.Right bundle branch block

D.Left bundle branch block

E.Recent myocardial infarction

Answer:Right bundle branch block

Explanation:

The following features can be seen on this ECG:

broad QRS > 120 ms

rSR' pattern in V1-3 ('M' shaped QRS complex)

wide, slurred S wave in the lateral leads (aVL, V5-6)

It is therefore diagnostic of right bundle branch block.

Question:

A 35-year-old woman is convinced to attend her general practitioner by her mother. Her mother is concerned that her daughter is entirely convinced that a famous actor is in love with her, despite having never met or communicated with them.

On examination, the woman appears well. There is no evidence of hallucinations, confusion or abnormal speech patterns. Apart from the unshakeable belief that the famous actor is in love with her, the mental status examination is normal.

What is the correct description of this disorder?

A.Capgras syndrome

B.De Clerambault's syndrome

C.De Frégoli syndrome

D.Ekbom syndrome

E.Othello syndrome

Answer:De Clerambault's syndrome

Explanation:

Erotomania (De Clerambault's syndrome) is the presence of a delusion that a famous is in love with them, with the absence of other psychotic symptoms

Important for meLess important

De Clerambault's syndrome is correct. This is the presence of a delusion that a famous person is in love with them, with the absence of other psychotic symptoms as is the case, here.

Capgras syndrome is incorrect. This is the delusion that a person closely related to the patient has been replaced by an impostor.

De Frégoli syndrome is incorrect. This is the delusion of identifying a familiar person in various people they encounter.

Othello syndrome is incorrect. This is a delusion of sexual infidelity on the part of a sexual partner.

Ekbom syndrome is incorrect. This is delusional parasitosis and describes the delusion of infestation.

Question:

By which mechanism does loperamide act through to slow down bowel movements?

A.Reduction in gastric motility through stimulation of alpha receptors

B.Reduction in gastric motility through inhibition of dopamine receptors

C.Reduction in gastric motility through simulation of GABA receptors

D.Reduction in gastric motility through stimulation of opioid receptors

E.Reduction in gastric motility through inhibition of somatostatin receptors

Answer:Reduction in gastric motility through stimulation of opioid receptors

Explanation:

Loperamide is a μ-opioid receptor agonist which does not have systemic effects as it is not absorbed through the gut

Important for meLess important

The mechanism by which loperamide works is through stimulation of μ-opioid receptors in the submucosal neural plexus of the intestinal wall. This, in turn, reduces peristalsis of the intestines decreasing gastric motility.

Question:

A 41-year-old multiparous woman has a dating scan at 11 weeks gestation. A live fetus is seen, but with multiple abnormalities including choroid plexus cysts, clenched hands, rocker bottom feet and small placenta. What is the most likely abnormality?

A.Down syndrome (Trisomy 21)

B.Edwards syndrome (Trisomy 18)

C.Patau syndrome (Trisomy 13)

D.Triploidy

E.Congenital cytomegalovirus

Answer:Edwards syndrome (Trisomy 18)

Explanation:

A baby is born with micrognathia, low-set ears, rocker bottom feet and overlapping of fingers - Edward's syndrome

Important for meLess important

Edwards Syndrome (Trisomy 18) is the second most common trisomy after Down Syndrome. In most cases, the parents opt for termination of pregnancy due to it's poor outcome; many die in-utero and it is rare for infants with Edwards to live for longer than one week. There are several ultrasound markers which are suggestive of Edwards syndrome and should prompt further investigation. These include:

Cardiac malformations

Choroid plexus cysts

Neural tube defects

Abnormal hand and feet position: clenched hands, rocker bottom feet and clubbed feet

Exomphalos

Growth restriction

Single umbilical artery

Polyhydramnios

Small placenta

Whilst these are not specific to Edwards syndrome, they are highly suggestive and together increase the likelihood of diagnosis. In fetal medicine these are known as 'soft markers' and confirmation of diagnosis should be sought, with patient consent, by karyotype analysis of placental (chorionic villus sampling) or amniotic fluid (amniocentesis).

The differential diagnosis for multiple fetal abnormalities includes infections, such as rubella, cytomegalovirus and varicella zoster. Maternal viral serology may be useful in diagnosis.

Question:

A 53-year-old woman attends her GP surgery for a routine cervical smear. Based on the initial high-risk human papillomavirus (hrHPV) result, she is invited for a repeat smear in a further 12 months' time.

At this repeat smear, she is informed that the hrHPV result is now negative.

Her past medical history is unremarkable.

What is the most appropriate management option?

A.Refer for colposcopy

B.Repeat smear in 3 months

C.Repeat smear in 12 months

D.Repeat smear in 3 years

E.Repeat smear in 5 years

Answer:Repeat smear in 5 years

Explanation:

Cervical cancer screening: if 1st repeat smear at 12 months is now hrHPV -ve → return to routine recall

Important for meLess important

The correct answer is to repeat a smear in 5 years. The 12-month repeat described in the scenario is due to the initial smear being positive for high-risk human papillomavirus (hrHPV) but cytology negative. At the subsequent repeat, we are told that this is now negative. As such, guidelines state that she should be returned to routine recall - in her age group, this is 5-yearly. In younger women, the correct answer would be 3-yearly. The other scenario where 12-monthly smears would occur is in HIV-positive patients - but we are told that she has no significant past medical history.

Referring for colposcopy is incorrect - if cytology had been abnormal, this would be appropriate.

Repeating the smear in 3 months is unwarranted - this would be appropriate if a sample was returned as being 'inadequate'.

Repeating in a further 12 months would be warranted if hrHPV was again positive, and cytology again negative. At the second repeat, if the same result was demonstrated, she should then be referred for colposcopy. However, if hrHPV was negative at the second repeat, she could then be returned to routine recall.

Repeating the smear in 3 years would be appropriate if she were younger - however, for her age bracket, 5-yearly is correct.

Question:

A 68-year-old public hospital inpatient suddenly complains of chest pain and dyspnoea 3 days after a left total hip arthroplasty. His past medical history includes hypertension and dyslipidemia, and he is a current smoker. The man denies nausea, palpitations, lightheadedness, fever or calf tenderness. Examination is normal and ECG shows sinus tachycardia. Chest X-ray is normal.

What is the most appropriate initial management?

A.Apixaban

B.Aspirin

C.Glyceryl trinitrate

D.Unfractionated heparin

E.Warfarin

Answer:Apixaban

Explanation:

Patients with a suspected pulmonary embolism should be initially managed with a direct oral anticoagulant (DOAC)

Important for meLess important

Given this patient's clinical presentation on a background of surgery/immobility, the treating physician should suspect a pulmonary embolism. Direct oral anticoagulants should be used as first-line interim anticoagulation in patients with suspected pulmonary embolism.

Examples of direct oral anticoagulants include direct thrombin inhibitors (eg dabigatran) and direct factor Xa inhibitors (eg apixaban, rivaroxaban, edoxaban).

Apixaban is the only direct oral anticoagulant listed and is therefore the most appropriate initial management for this patient given he has a suspected pulmonary embolism.

Aspirin is a non-selective cyclooxygenase (COX) inhibitor that blocks the production of thromboxane A2 by platelets. This impairs platelet aggregation. The anti-platelet properties of aspirin makes it useful in the prevention and treatment of arterial clots. However, aspirin is not used for suspected pulmonary embolism.

Glyceryl trinitrate produces nitric oxide, which induces relaxation of vascular smooth muscle cells to cause vasodilation. It is commonly used to treat angina pectoris but is not an effective treatment for suspected pulmonary embolism.

Unfractionated heparin potentiates the action of anti-thrombin III but is not used as first-line treatment for suspected pulmonary embolism because it is associated with an increased risk of bleeding and higher mortality than direct oral anticoagulants.

Warfarin is a vitamin K antagonist that inhibits the vitamin K-dependent coagulation factors (II, VII, IX and X). Direct oral anticoagulants are preferred to warfarin because warfarin requires regular INR monitoring, has more food/drug interactions and is associated with a higher bleeding risk.

Question:

A 23-year-old trans woman presents to her general practitioner 2 weeks following a sexual assault by a colleague at work. She has been having constant flashbacks, nightmares and episodes of dissociation since the event. Her sleep is affected, and she has been off work for the past 2 weeks.

Given the likely diagnosis, what is the ideal first-line management, if it were immediately available?

A.Counselling

B.Eye movement desensitisation and reprocessing therapy

C.Interpersonal therapy

D.Mindfulness-based cognitive therapy

E.Trauma-focused cognitive behavioural therapy

Answer:Trauma-focused cognitive behavioural therapy

Explanation:

Trauma-focused cognitive-behavioural therapy (CBT) should be used first-line for acute stress disorders

Important for meLess important

This woman presents with distressing symptoms following a traumatic event. The symptoms she describes fit with that of an acute stress disorder, which include intrusive symptoms (i.e. flashbacks and nightmares), arousal symptoms (i.e. sleep disturbances), avoidance symptoms (i.e. staying off work) as well as dissociative symptoms. Dissociative symptoms are the common differentiator from post-traumatic stress disorder, which can only be diagnosed 4 weeks following the event.

The ideal first-line for an acute stress disorder is trauma-focused cognitive behavioural therapy. This is useful if it is immediately available, which unfortunately is not usually the case. It involves a highly trained therapist exploring the thoughts around the traumatic event and linking them to behaviours or symptoms which are developing because of them. It aims to give control over thoughts and behaviours back to the individual.

Counselling is not appropriate for an acute stress disorder. This consists of a counsellor being there to listen and empathise with the individual. The counsellor takes less control over the conversation than a therapist would. Counselling following a stressful event may actually be harmful, as the trauma is explored in an uncontrolled way, which may further exacerbate the negative thoughts.

Eye movement desensitisation and reprocessing therapy is not appropriate for an acute stress disorder. This is the first-line treatment for post-traumatic stress disorder, but as this cannot be diagnosed in this patient yet, it is not the appropriate treatment. This type of therapy involves individuals being trained to reprocess thoughts of the trauma with the eventual goal of being able to let them go. It will not work for acute thoughts of trauma as the mind has not had time to process them for the first time.

Interpersonal therapy is not appropriate. This type of therapy involves addressing the relationships with those in one's life. It is not useful in acute stress disorder as it is intended to deal with longer-term, and more deep-rooted thoughts.

Mindfulness-based cognitive therapy is not appropriate. Whilst mindfulness may have some efficacy for acute stress disorder, there is no evidence that mindfulness on its own is enough to deal with severe reactions to trauma.

Question:

Each one of the following is associated with bronchiectasis, except:

A.Cystic fibrosis

B.Down's syndrome

C.Pertussis

D.Hypogammaglobulinaemia

E.Young's syndrome

Answer:Down's syndrome

Explanation:

Question:

A 66-year-old man who has recently suffered a stroke has come to see you today for follow up. He reports that he was watching the football with his son last week when he noticed that he had lost sensation in the right side of his body. An ambulance was immediately called following the incident and he was taken to hospital where a left sided ischaemic stroke was confirmed on a CT scan. He has no other past medical history.

Which one of the following antiplatelet medications should he be given following the stroke?

A.Aspirin 75mg daily for 2 weeks and then clopidogrel 75mg daily lifelong

B.Aspirin 300 mg daily for 2 weeks then clopidogrel 75 mg daily lifelong

C.Aspirin 300mg for 3 months and then clopidogrel 75mg for 1 year

D.Aspirin 75mg daily for 1 year and then clopidogrel 75mg daily lifelong

E.Aspirin 300mg and then dipyridamole 200mg twice daily lifelong

Answer:Aspirin 300 mg daily for 2 weeks then clopidogrel 75 mg daily lifelong

Explanation:

Following a stroke all patients should be offered an antiplatelet drug unless the person has an indication for an anticoagulant.

According to NICE guidelines:

Aspirin 300 mg daily for 2 weeks should be given immediately after an ischaemic stroke is confirmed by brain imaging. Following this, clopidogrel 75 mg daily should be given long-term -if it can be tolerated and is not contraindicated.

If clopidogrel is contraindicated or not tolerated, then the patient should be given modified-release dipyridamole alongside low dose aspirin.

Question:

An 88-year-old man presents to the emergency department with an extremely painful lump in his right inguinal region. He has not opened his bowels or passed flatus and feels slightly nauseous.

He has a past medical history of hypertension and laparoscopic cholecystectomy 4 years ago.

On examination, there is a painful erythematous lump consistent with an incarcerated hernia. His temperature is 38.1ºC.

An emergency CT scan shows multiple dilated bowel loops. The attending doctor suggests urgent laparoscopic repair of the hernia.

What is a contraindication to the suggested treatment plan?

A.His age

B.Multiple dilated bowel loops

C.No contraindications

D.Previous laparoscopic surgery

E.Temperature of 38.1ºC

Answer:Multiple dilated bowel loops

Explanation:

Acute intestinal obstruction with dilated bowel loops is a contraindication to laparoscopic surgery

Important for meLess important

Multiple dilated bowel loops is the correct answer. This patient is presenting with an incarcerated hernia with bowel also present within the hernia. This is seen as he is also presenting with signs of bowel obstruction. Acute intestinal obstruction with dilated bowel loops is a contraindication to laparoscopic surgery because of the increased risk of iatrogenic bowel perforations. Other contraindications to be aware of include:

Haemodynamic shock and instability

Uncorrected coagulopathy

Raised intracranial pressure

His age is incorrect. There is no age limit for laparoscopic surgery and is often preferred in the older population because of the reduced risk of postoperative complications, and a reduced length of hospital stay.

No contraindication is incorrect. As stated above important contraindications for laparoscopic surgery include acute intestinal bowel obstruction with dilated bowel loops, uncorrected coagulopathy, raised intracranial pressure and haemodynamic shock. As this patient has a presentation consistent with bowel obstruction and there are dilated loops on CT imaging this would pose a contraindication to laparoscopic surgery.

Previous laparoscopic surgery is incorrect. This is not a contraindication however it is important to note that those who have had a recent laparotomy in the past 4-6 weeks or those who have extensive adhesions from previous surgeries may post a contraindication dependent on the patient's overall clinical picture. You should note that laparoscopic surgery does increase the risk of long-term post-operative adhesions hence multiple laparoscopic surgeries resulting in adhesions may be a contraindication dependent on the patient and severity of the adhesions.

Temperature of 38.1ºC. is incorrect. This is likely a reaction secondary to the incarcerated hernia and does not pose a contraindication for laparoscopic surgery.

Question:

An 8-year-old boy attends the emergency department accompanied by his father. He states his son has been unable to catch his breath since 2 hours ago and is not responding to his blue inhaler. His observations show a heart rate of 130 bpm, blood pressure of 120/90mmHg, respiratory rate of 20/min, oxygen saturation of 93% and temperature of 37.6ºC.

On examination, the boy cannot speak in full sentences and is using his accessory muscles to breathe.

A blood gas comes back and shows:

PH 7.32 (7.35-7.45)

PaO2 9kPa (10.6-13.4)

PaCO2 5.8kPa (4.6-6.0)

Bicarbonate 20mmol/L (22-26)

What severity of exacerbation of asthma is this child having?

A.Life-threatening

B.Mild

C.Moderate

D.Near fatal

E.Severe

Answer:Life-threatening

Explanation:

A normal pCO2 in an acute asthma attack indicates it is life-threatening

Important for meLess important

Life-threatening is the correct answer. This child has a normal partial pressure of carbon dioxide (PaCO2), which is a feature of a life-threatening asthma exacerbation. A normal PaCO2 in an acute asthma attack is a concerning sign, as it indicates that the child is no longer able to compensate for airway obstruction and respiratory alkalosis by increasing their respiratory rate. This could be due to exhaustion, increased ventilation-perfusion mismatch, or worsening bronchoconstriction. In the management of a life-threatening asthma exacerbation with a normal PaCO2, prompt and aggressive treatment is crucial. This includes administering oxygen, inhaling short-acting beta-agonists, systemic corticosteroids, and closely monitoring the child's clinical status and PaCO2 levels. Additional therapies and escalation of care, such as non-invasive ventilation or consulting with specialists, may be necessary if the child does not respond to initial treatments or continues to deteriorate.

Mild is incorrect. This child is not having a mild asthma exacerbation. There is evidence of tachycardia, accessory muscle use and early signs of exhaustion. In a mild asthma exacerbation, children will clinically be fine, and can often be treated at home with their salbutamol reliever inhaler.

Moderate is incorrect. This again is not a moderate asthma exacerbation. Speech is normal in a moderate attack, and children will have a normal heart rate and respiratory rate.

Near fatal is incorrect. Although this child can progress to a near-fatal asthma attack if their PaCO2 levels continue to rise, they are not suffering from this at the moment. By not initiating urgent management for this child immediately, this child will continue to deteriorate and may progress to a near-fatal state.

Severe is incorrect. This child has many features that suggest a severe asthma attack, however, given that he also has a normal partial pressure of carbon dioxide that is a feature of a life-threatening attack, he needs to be managed as this.

Question:

A 62-year-old woman is being treated for community-acquired pneumonia in the acute medical unit. She calls the nurse over complaining of spontaneous epistaxis from the right nostril that began 2 minutes earlier.

What is the most appropriate next step?

A.Attempt cautery with silver nitrate

B.Insert a double-lumen rapid rhino

C.Insert a single-lumen rapid rhino

D.Insert absorbable nasal dressing

E.Pinch the nasal ala firmly and lean forward

Answer:Pinch the nasal ala firmly and lean forward

Explanation:

Initial management for epistaxis is with adequate first aid - pinch the nasal ala (nostrils) firmly and lean forward for 20 minutes

Important for meLess important

This question is asking about the initial management for an isolated nosebleed. Initial management for epistaxis is with adequate first aid - pinch the nasal ala (nostrils) firmly and lean forward for 20 minutes. Leaning forward prevents blood from being swallowed and so allows blood loss to be quantified better.

Additional first aid measures in the community include the application of ice around the nose and in the roof of the mouth to encourage vasoconstriction. In most cases of epistaxis this will stem the bleeding and additional management is not required.

Attempting cautery with silver nitrate is not appropriate in this scenario as first aid measures have not been utilised yet. Cauterisation can be considered if first aid measures fail and a bleeding point can be identified. In heavy epistaxis it is often very difficult to identify the bleeding point and tamponade methods are used. Once the bleeding has settled, it is then possible to try to identify the problematic vessel and cauterise in order to prevent a recurrence.

Insertion of a rapid rhino would be the next step if the bleeding did not settle with first aid measures and is therefore incorrect.

A rapid rhino is an absorbent nasal tamponade device that has an inflatable lumen encased in absorbent material. It is lubricated in water and inserted along the floor of the nasal cavity before being inflated. Single-lumen devices are sufficient for anterior epistaxis and double-lumen devices are more effective for posterior bleeds.

Insertion of absorbable nasal dressing is not an appropriate initial measure in this scenario. It provides less of a tamponade effect than a rapid rhino and is often inserted post-operatively to manage bleeding, whilst also preventing adhesions. This woman requires first aid measures as previously mentioned.

Question:

A 54-year-old man has a routine medical for work. He is asymptomatic and clinical examination is unremarkable. Which of the following results establishes a diagnosis of impaired fasting glucose?

A.Fasting glucose 7.1 mmol/L on one occasion

B.Fasting glucose 6.8 mmol/L on two occasions

C.Glycosuria ++

D.75g oral glucose tolerance test 2 hour value of 8.4 mmol/L

E.HbA1c of 6.7%

Answer:Fasting glucose 6.8 mmol/L on two occasions

Explanation:

A 75g oral glucose tolerance test 2 hour value of 8.4 mmol/L would imply impaired glucose tolerance rather than impaired fasting glucose

Question:

A 45-year-old man presents to his general practitioner with a one-week history of a rash. He has recently returned from a holiday in Spain. He does not have any significant past medical history and does not take any regular medications.

On examination, there is a rash affecting his trunk, consisting of multiple hypopigmented patches, which are slightly scaly.

Based on the likely diagnosis, what is the appropriate treatment?

A.Oral itraconazole

B.Oral prednisolone

C.Topical betamethasone

D.Topical ketoconazole

E.Vitamin D analogue

Answer:Topical ketoconazole

Explanation:

Ketoconazole shampoo is used to treat pityriasis versicolor

Important for meLess important

Topical ketoconazole is correct. A rash consisting of multiple hypopigmented patches affecting the trunk is a typical description of pityriasis versicolor. The rash may be more visible in those with a suntan, which we might expect this man to have after returning from a holiday in Spain. The treatment in the first instance is topical ketoconazole.

Oral itraconazole is incorrect. This is used in disease refractory to initial treatment.

Topical betamethasone is incorrect. Topical steroids are used in a wide variety of skin conditions including eczema and psoriasis. However, they are not indicated in pityriasis versicolor. Vitiligo is another condition that causes hyperpigmentation. However, the acute history suggests pityriasis versicolor as a more likely cause.

Oral prednisolone is incorrect. Again, oral steroids are indicated in a wide variety of inflammatory skin conditions but they are not indicated in this disease.

Vitamin D analogue is incorrect. This class of medication is used in the treatment of psoriasis, not pityriasis versicolor.

Question:

You are asked to review a 78-year-old man in the acute medical ward. He was admitted with severe diarrhoea and significant hypotension. He has received 6L of IV 0.9% sodium chloride in the last 24 hours. This has improved his blood pressure, but he has ongoing loose stool.

As part of your review, you perform an arterial blood gas.

Given his history, what are you likely to see on arterial blood gas?

A.Hyperchloraemic metabolic acidosis

B.Hyperkalaemic metabolic acidosis

C.Hyperkalaemic metabolic alkalosis

D.Hypochloraemic metabolic acidosis

E.Hyponatraemic metabolic alkalosis

Answer:Hyperchloraemic metabolic acidosis

Explanation:

Use of 0.9% Sodium Chloride for fluid therapy in patients requiring large volumes = risk of hyperchloraemic metabolic acidosis

Important for meLess important

This patient has had severe diarrhoea and excess normal saline. Severe diarrhoea can cause excess bicarbonate loss. 0.9% Sodium chloride contains 154mmol/L of sodium and 154mmol/L chloride. Large volume resuscitation with normal saline leads to an overload of chloride ions into the blood. The increased chloride ions, force bicarbonate into the cells and in doing so reduce the available bicarbonate for the pH buffering system.The result is a hyperchloraemic metabolic acidosis.

0.9% sodium chloride does not contain potassium and does not cause hyperkalaemia. In contrast, Hartmann's fluid does contain potassium and therefore should not be used in patients with hyperkalaemia.

Hypochloraemic metabolic acidosis is not correct as excess sodium chloride is associated with a risk of hyperchloraemia rather than hypochloraemia.

Excess sodium chloride is associated with metabolic acidosis rather than alkalosis and therefore any hyponatraemic metabolic alkalosis is incorrect.

Question:

A two-year-old female is brought into the paediatric emergency department by her father. She has been coughing for three days, producing green sputum and has been off her food. She has been drinking water but has only wet two nappies today. On examination, she has a moderate intercostal recession, right-sided lung crackles and appears withdrawn. Her mucous membranes appear dry.

According to the NICE traffic light system, which of the infant's symptoms is most concerning?

A.Dry mucous membranes

B.Lung crackles on auscultation

C.Moderate intercostal recession

D.Reduced urine output

E.Withdrawn appearance

Answer:Moderate intercostal recession

Explanation:

Moderate or severe intercostal recession is a red flag in paediatric patients with a fever

Important for meLess important

The correct answer is a moderate intercostal recession, as this is the only 'red' sign on the NICE traffic light system. This infant has several 'amber' signs according to the NICE traffic light system and one 'red' sign.

Amber signs include:

Nasal flaring

Lung crackles on auscultation

Not responding normally to social cues

Reduced nappy wetting

Dry mucous membranes

Pallor reported by parent or carer

Red signs include:

Moderate or severe chest wall recession

Does not wake if roused

Reduced skin turgor

Mottled or blue appearance

Grunting

Question:

A 65-year-old man has acute breathlessness. He had fevers and malaise over the last 3 weeks. There is decreased air entry and inspiratory crackles bilaterally. A pansystolic murmur is heard in the 5th intercostal space in the midclavicular line.

His heart rate is 120 bpm, blood pressure is 93/60 mmHg, and respiratory rate is 26 /min. Oxygen saturations are 92% on room air and his temperature is 39ºC.

Blood cultures show S. aureus twice and a chest x-ray shows bilateral oedema. Echocardiography shows an ejection fraction of 33% and valvular regurgitation.

What is the definitive step in this patient's management?

A.Bilevel positive airway pressure (BiPAP)

B.Continuous positive airway pressure (CPAP)

C.IV diuretics

D.IV fluids and antibiotics

E.Urgent valvular surgery

Answer:Urgent valvular surgery

Explanation:

Infective endocarditis - indications for surgery:

severe valvular incompetence

aortic abscess (often indicated by a lengthening PR interval)

infections resistant to antibiotics/fungal infections

cardiac failure refractory to standard medical treatment

recurrent emboli after antibiotic therapy

Important for meLess important

Urgent valvular surgery is correct. This patient has acute heart failure which is likely to be secondary to mitral valve regurgitation. As this patient has fevers, malaise, and a pansystolic murmur suggestive of mitral regurgitation, the underlying cause of his presentation is likely to be infective endocarditis. In addition to this, two major criteria from the Modified Duke criteria are present (two positive blood cultures and positive echocardiogram findings). Indications for surgery in infective endocarditis are severe congestive heart failure, infections resistant to antibiotic therapy, recurrent emboli after antibiotic therapy, severe valvular incompetence, and an aortic abscess. As this patient has acute heart failure secondary to infective endocarditis, the definitive step in his management is surgery to remove the infected tissue and restore normal valvular function. The other options are supportive measures but do not address the underlying problem.

Bilevel positive airway pressure (BiPAP) is incorrect. This method of non-invasive ventilation does not play a role in the management of acute heart failure. It is instead used in acute exacerbations of chronic obstructive pulmonary disease (COPD).

Continuous positive airway pressure (CPAP) is incorrect. While this form of non-invasive ventilation may be used in acute heart failure, this is not a definitive management step as it does not address the underlying problem, which is the infective endocarditis affecting the valve leading to insufficiency and hence, heart failure.

IV diuretics is incorrect. Although this is an intervention used in the management of acute heart failure to address pulmonary oedema, this is not a definitive management step as it does not address the underlying problem, which is the infective endocarditis affecting the valve leading to insufficiency and hence, heart failure.

IV fluids and antibiotics is incorrect. While this is a management step performed in all patients with suspected or confirmed infective endocarditis, this is not a definitive management step as the patient is currently in acute heart failure secondary to valvular insufficiency due to the infective endocarditis. The antibiotic therapy would be too slow to help improve the patient's health and may not resolve the problem of the acute heart failure at hand. This patient would not survive without emergency surgery.

Question:

You are called to do a house visit for a 30-year-old woman who is unable to get to your surgery. She was previously fit and well, apart from having 'a bit if a cold', but this morning she woke up feeling very dizzy with the sensation that the room is spinning, and feels too ill to leave the house. She has vomited twice this morning.

Given the likely diagnosis, how should you manage this patient?

A.Prochlorperazine for the duration of the illness

B.Prochlorperazine in the acute phase only

C.Betahistine for the duration of the illness

D.Betahistine in the acute phase only

E.Vestibular rehabilitation exercises only

Answer:Prochlorperazine in the acute phase only

Explanation:

Prochlorperazine may be useful in the acute phase of vestibular neuronitis, but should be stopped after a few days as it delays recovery by interfering with central compensatory mechanisms

Important for meLess important

This is a typical presentation of vestibular neuronitis. Prochlorperazine may be useful in the acute phase of vestibular neuronitis, but should be stopped after a few days as it delays recovery by interfering with central compensatory mechanisms. If the patient is vomiting, prochlorperazine can be given intramuscularly initially, and subsequently switched to oral. After the acute phase, mobilisation should be encouraged as well as twice daily vestibular rehabilitation exercises.

Though it is often used, there is little evidence that betahistine in vestibular neuronitis.

Though vestibular rehabilitation exercises are recommended, given the severity of the illness, an antiemetic such as prochlorperazine would be required acutely.

Question:

You are reviewing some letters from the hospital and see a letter from an oncologist regarding one of your patients. She presented to you 6 weeks ago with weight loss and haemoptysis.

She has recently been started on an immune checkpoint inhibitor to treat her non-small cell lung cancer.

From the list below, which drug is an example of this class of cancer drug?

A.Rituximab

B.Nivolumab

C.Cyclophosphamide

D.Vincristine

E.Tamoxifen

Answer:Nivolumab

Explanation:

Currently available immune checkpoint inhibitors are used to treat solid tumours

Important for meLess important

Immune checkpoint inhibitors are increasingly being used to treat solid tumours including non-small cell lung cancer. Nivolumab was the first immune checkpoint inhibitor approved to treat lung cancer. Therefore, option 2 is correct. All checkpoint inhibitors end in 'mab'.

Rituximab also ends in 'mab' but is a type of monoclonal antibody and not an immune checkpoint inhibitor.

Cyclophosphamide and vincristine are types of chemotherapy.

Tamoxifen is an example of a hormonal treatment and is not a checkpoint inhibitor. It is one of the most commonly used hormone therapies for breast cancer.

Question:

A 67-year-old man presents to the Emergency Department with severe abdominal pain and haematemesis. After initial resuscitation, he undergoes an urgent CT scan which reveals a perforated duodenal ulcer. The surgical team arranges an emergency laparotomy and he is transferred to theatre.

Given his non-fasted state, the anaesthetist plans to perform a rapid sequence induction (RSI) using a depolarising muscle relaxant to reduce airway compromise.

Which of the following drugs is appropriate to use?

A.Rocuronium

B.Sugammadex

C.Mivacurium

D.Suxamethonium

E.Pancuronium

Answer:Suxamethonium

Explanation:

Suxamethonium is a depolarising muscle relaxant

Important for meLess important

There are two main categories of muscle relaxants used in anaesthesia: depolarising muscle relaxants and non-depolarising muscle relaxants.

Out of the listed options, suxamethonium is the only example of a depolarising muscle relaxant, and therefore this is the correct response.

Rocuronium, mivacurium, and pancuronium are all incorrect as these drugs are all examples of non-depolarising muscle relaxants.

Sugammadex is a drug utilised in anaesthesia for reversal of neuromuscular blockade caused by rocuronium and vecuronium and therefore is an incorrect answer.

Question:

Which of the following foods should be avoided in pregnancy?

A.Cooked liver

B.Cottage cheese

C.Cooked chicken

D.Natural yoghurt

E.Cooked crabmeat

Answer:Cooked liver

Explanation:

Liver should be avoided in pregnancy as it contains high levels of vitamin A, a teratogen.

Question:

A 52-year-old man has an Achilles tendon rupture while playing tennis. He has no past medical history and has had no previous musculoskeletal problems. During the preceding week, he was commenced on antibiotic therapy for an infection and has been taking it for the past seven days. Which antibiotic was he likely to have started?

A.Benzylpenicillin

B.Ciprofloxacin

C.Clarithromycin

D.Doxycycline

E.Nitrofurantoin

Answer:Ciprofloxacin

Explanation:

Ciprofloxacin is the likely causative medication with new onset achilles tendon disorders; tendinitis and tendon rupture is a key side effect of which to be aware

Important for meLess important

Ciprofloxacin is the likely causative medication with new-onset Achilles tendon disorders; tendinitis and tendon rupture are key side effects of which to be aware.

Question:

A 65-year-old anxious woman presents to your GP surgery with chest pain. She describes the pain as a sharp stabbing pain in the middle of the chest. This occurs on exertion such as doing the housework or walking to the nearby shops. She has been prescribed GTN spray previously and this normally helps to settle the pain within 3 minutes. The pain does not get worse on leaning forward, after meals or lying down. Breathing in does not worsen or relieve the pain. She denies any shortness of breath, syncope, sweating, dizziness, nausea or vomiting. Palpation of the chest does not reveal any tender points.

Her past medical history includes panic disorder and GORD. Her only regular medications are sertraline and ranitidine. She has been taking ranitidine regularly but the frequency of chest discomfort remains unchanged.

How would you classify her chest pain type?

A.Anxiety-related chest discomfort

B.Atypical angina

C.Pleuritic chest pain

D.Musculoskeletal pain

E.Acid reflux

Answer:Atypical angina

Explanation:

'Typical' chest pain is defined by any chest discomfort that meets the 3 criteria listed by the NICE guideline 2016. Atypical chest pain is defined by any chest discomfort that meets the 2 of 3 criteri

Important for meLess important

Her chest pain is atypical as it only meets 2 out of the 3 criteria of stable angina.

Her chest pain is described as sharp (rather than constricting)

Her chest pain may be precipitated by physical exertion

Her chest pain is relieved by GTN spray within 5 minutes

Cardiac chest pain is typically described as constricting (but this lady describes it as sharp). Note that angina is more likely to be atypical in women and diabetics. Anxiety may lead to chest discomfort especially during a panic attack but the history is not indicative of this. Acid-reflux may cause chest discomfort but it would typically be described as heartburn, worse on lying down or after meals. Musculoskeletal pain is usually worse with palpation of the chest wall.

Question:

A 28-year-old woman is admitted to the labour ward at 38+4 weeks gestation. This is her first pregnancy and she tells you that contractions started around 10 hours ago. On examination, her cervix is positioned anteriorly, is soft, and is effaced at around 60-70%. Cervical dilatation is estimated at around 3-4cm and the fetal head is located at the level of the ischial spines. She has had no interventions performed as of yet.

What intervention should be performed?

A.Amniotomy

B.Maternal oxytocin infusion

C.Membrane sweep

D.No interventions required

E.Vaginal prostaglandin E2

Answer:No interventions required

Explanation:

A Bishop's score of ≥ 8 indicates that the cervix is ripe, or 'favourable' - there is a high chance of spontaneous labour, or response to interventions made to induce labour

Important for meLess important

This patient has a bishop score of 10 (see below).

Cervical position Anterior +2

Cervical consistency Soft +2

Cervical effacement 60-70% +2

Cervical dilation 3-4cm +2

Fetal station 0 +2

As her bishop score is 10 and her labour has only been ongoing for 10 hours, no interventions are required. A Bishop's score greater than or equal to 8 indicates that there is a high chance of spontaneous labour and as this is the patient's first pregnancy this first stage of labour can last up to 12 hours. A Bishop's score of <5 indicates that labour is unlikely to progress without induction, it is in these patients that you would consider the other options, with vaginal prostaglandin E2 being the preferred method.

Amniotomy is the artificial rupturing of membranes and can be performed if other methods have failed to induce labour or if vaginal prostaglandin E2 is contra-indicated. Amniotomy carries the risk of infection, umbilical cord prolapse and baby moving into breech position if the fetal head is not engaged.

Maternal oxytocin infusion can be used if labour is not progressing and other methods of induction have been tried but wouldn't be appropriate in this scenario at this stage. Oxytocin infusion carries the risk of uterine hyperstimulation.

A membrane sweep is a finger inserted vaginally and through the cervix which separates the chorionic membrane from the decidua. This is considered an adjunct to induction of labour and is usually offered to primiparous women at 40/41 weeks.

Vaginal prostaglandin E2 is the preferred method of induction of labour but as this patient is only 10 hours into the first stage of labour and she has a bishop score of 10 induction of labour would not be required at this point.

Question:

A 45-year-old female with nephrotic syndrome develops renal vein thrombosis. What changes in patients with nephrotic syndrome predispose to the development of venous thromboembolism?

A.Reduced excretion of protein S

B.Loss of antithrombin III

C.Reduced excretion of protein C

D.Loss of fibrinogen

E.Reduced metabolism of vitamin K

Answer:Loss of antithrombin III

Explanation:

Question:

A 52-year-old man presents to his GP as he is concerned about a discharge from his nipples. Which one of the following drugs is most likely to be responsible?

A.Ranitidine

B.Isoniazid

C.Digoxin

D.Spironolactone

E.Chlorpromazine

Answer:Chlorpromazine

Explanation:

Each of the other four drugs may be associated with gynaecomastia rather than galactorrhoea

Question:

A 15-year-old girl with asthma presents to the emergency department with worsening breathlessness which started while playing tennis an hour ago, with no improvement after inhaled salbutamol. On arrival, her oxygen saturation was 93% but 15 minutes later it is 89% on room air and her respiratory effort is decreased. She has been given high-flow oxygen, nebulised salbutamol and ipratropium, and oral prednisolone.

Arterial blood gases show:

pH 7.31 (7.35 - 7.45)

PaCO2 6.4 kPa (4.5 - 6.0)

PaO2 9.0 kPa (10 - 14)

Na+ 136 mmol/L (135 - 145)

K+ 3.5 mmol/L (3.5 - 5.0)

Bicarbonate 31 mmol/L (22 - 29)

What is the most appropriate next step in management?

A.Bilevel positive airway pressure (BiPAP)

B.Continuous positive airway pressure (CPAP)

C.Intramuscular adrenaline

D.Intravenous glucocorticoid

E.Intubation and ventilation

Answer:Intubation and ventilation

Explanation:

Patient with acute asthma who do not respond to full medical treatment and are becoming acidotic should be intubated and ventilated, rather than given BiPAP/CPAP

Important for meLess important

The correct answer is intubation and ventilation. This patient is having a near-fatal asthma attack, due to her declining oxygen saturation, increased carbon dioxide, and respiratory acidosis. Her decreasing respiratory effort signifies imminent exhaustion, and she is no longer able to compensate for the respiratory acidosis. Immediate action is required to prevent respiratory arrest, and she requires admission to intensive care with intubation and ventilation. Rapid sequence induction of anaesthesia is preferred here. Endotracheal tube placement can cause bronchospasm so these patients should be monitored closely for a worsening in their condition.

Bilevel positive airway pressure (BiPAP) is incorrect. This is a form of non-invasive ventilation (NIV) where different pressures are given between inhalation and exhalation. There is inconclusive evidence around the use of NIV for patients with acute asthma attacks. Intubation and ventilation in the intensive care setting is the treatment of choice for respiratory arrest in near-fatal asthma.

Continuous positive airway pressure (CPAP) is incorrect. This is a form of NIV where a single pressure is maintained throughout inhalation and exhalation. There is inconclusive evidence around the use of NIV for patients with acute asthma attacks. Intubation and ventilation in the intensive care setting is the treatment of choice for respiratory arrest in near-fatal asthma.

Intramuscular adrenaline is incorrect, as this is not in the recommended pathway for full medical treatment of an acute asthma attack and the evidence suggests that it has similar efficacy to a nebulised short-acting beta agonist. In this scenario, the next best step is to intubate and ventilate the patient, due to her acidosis and impending respiratory arrest.

Intravenous glucocorticoid is incorrect, as oral glucocorticoids have already been given and these have been shown to be as effective as intravenous glucocorticoids, provided the patient can swallow them. Intubation and ventilation is a more appropriate next step in this scenario, to prevent respiratory arrest.

Question:

A 2-day-old baby is brought to the Emergency Department after his mum noticed that he has became floppier, more irritable, and not feeding properly over the past 24 hours.

Lumbar puncture confirms meningitis.

Which is the most likely causative organism in this case?

A.Haemophilus influenzae type b

B.Group B streptococcus

C.Neisseria meningitidis

D.Streptococcus pneumoniae

E.Klebsiella pneumoniae

Answer:Group B streptococcus

Explanation:

Neonates are at a greater risk of meningitis, with greater risks associated with low birth weight, prematurity, traumatic delivery, fetal hypoxia and maternal peripartum infection.

Initial presentation is usually nonspecific. Possible features include raised temperatures, respiratory distress, apnoea, bradycardia episodes, hypotension, feeding difficulty, irritability and reduced activity.

Question:

A baby boy born 6 hours ago has an APGAR score of 10. He is not cyanosed, has a pulse of 140, cries on stimulation, his arms and legs resist extension and he has a good cry, He appears jaundiced. What is the most appropriate action?

A.Encourage the mother to sit with the baby in sunlight

B.Arrange a blood transfusion

C.Start phototherapy

D.Prescribe intravenous immunoglobulin

E.Measure and record the serum bilirubin level urgently.

Answer:Measure and record the serum bilirubin level urgently.

Explanation:

Measure and record the serum bilirubin level urgently (within 2 hours) in all babies with suspected or obvious jaundice in the first 24 hours of life since this is likely to be pathological rather than physiological jaundice. NICE CG98

Question:

An 82-year-old woman presents to the emergency department accompanied by her son with new-onset symptoms. She has been experiencing difficulty swallowing since this morning. Additionally, she has been complaining of dizziness and difficulty walking.

She complains of vertigo and vomited twice since admission. Nystagmus is noticed in both eyes. Left-sided facial pain and temperature sensory loss and right-sided upper and lower limb pain and temperature sensory loss, with normal power bilaterally in all muscle groups are highlighted.

Given the most likely diagnosis, where is the lesion?

A.Left anterior inferior cerebellar artery

B.Left posterior inferior cerebellar artery

C.Right anterior inferior cerebellar artery

D.Right midbrain branches of the posterior cerebral artery

E.Right posterior inferior cerebellar artery

Answer:Left posterior inferior cerebellar artery

Explanation:

Sudden onset vertigo and vomiting, dysphagia, ipsilateral facial pain and temperature loss, contralateral limb pain and temperature loss and ataxia - posterior inferior cerebellar artery

Important for meLess important

Left posterior inferior cerebellar artery is correct. This patient is presenting with the classical features of the lateral medullary syndrome, a neurological disorder causing a range of symptoms due to ischemia in the lateral part of the medulla oblongata in the brainstem. The features are usually vertigo and vomiting, ataxia, nystagmus, dysphagia, ipsilateral facial sensory loss and contralateral upper and lower limb sensory loss. Most commonly, this is caused by occlusion of the posterior inferior cerebellar artery or the vertebral artery, which is not listed as an option here.

It causes ipsilateral facial pain and temperature loss (due to damage to the trigeminal nucleus, and the fact that the fibres of the trigeminal nerve do not decussate), contralateral limb/torso pain and temperature loss (due to damage to the lateral spinothalamic tract, before it decussates), ataxia (due to damage to the inferior cerebellar peduncle), and nystagmus (due to damage to the vestibular nucleus). Hence, in this case, the damage occurred on the left side.

Left anterior inferior cerebellar artery is incorrect. An injury of this vessel can be easily confused with a left posterior inferior cerebellar artery stroke, as the symptoms are very similar. But in this case, the stroke would additionally cause ipsilateral facial muscle weakness, decreased lacrimation and salivation and loss of taste sensation from anterior ⅔ of the tongue, due to the damage to the facial nerve nuclei. These symptoms are not described in this case.

Right anterior inferior cerebellar artery is incorrect. Damage here can be easily confused with a right posterior inferior cerebellar artery stroke, as the symptoms are very similar. But in this case, the stroke would additionally cause ipsilateral facial muscle weakness, decreased lacrimation and salivation and loss of taste sensation from anterior ⅔ of the tongue, due to the damage to the facial nerve nuclei. These symptoms are not described in this case.

Right midbrain branches of the posterior cerebral artery is incorrect. An injury here would cause left-sided upper and lower limb weakness and right oculomotor palsy. In this case, the strength is preserved and there is no sign of oculomotor nerve palsy.

Right posterior inferior cerebellar artery is incorrect. A stroke of this vessel would cause the symptoms described in this vignette, but the sensory loss would be on the right side and the limb pain and temperature loss would be on the left side.

Question:

A 55-year-old woman presents for review. Her mother has just been discharged after suffering a hip fracture. She is concerned that she may have 'inherited' osteoporosis and is asking what she should do. She has no significant past medical history of note, takes no regular medication and has never sustained any fractures. She smokes around 20 cigarettes per day and drinks about 3-4 units of alcohol per day.

What is the most appropriate course of action?

A.Arrange bone mineral density measurement (DEXA scan)

B.Reassure her that assessment of fragility fracture risk does not need to be done until 65 years

C.Refer her to the genetics team for a risk assessment

D.Start first-line bone protection (i.e. ensure calcium/vitamin D replete + oral bisphosphonate)

E.Use the FRAX tool

Answer:Use the FRAX tool

Explanation:

This lady has a number of risk factors for developing osteoporosis:

positive family history

smoking

excess alcohol intake

She should therefore have an immediate FRAX assessment, rather than waiting until 65 years as we would for women without any relevant risk factors

Question:

A 17-year-old girl presents with a six week history of nausea and abdominal discomfort. Routine blood tests reveal the following.

Hb 10.9 g/dl

WBC 6.7 \*109/l

Platelets 346 \*109/l

Calcium 2.43 mmol/l

Bilirubin 7 µmol/l

ALP 262 u/l

ALT 35 u/l

What is the most likely diagnosis?

A.Alcoholic liver disease

B.Cholangiocarcinoma

C.Pregnancy

D.Gallstones

E.Primary biliary cirrhosis

Answer:Pregnancy

Explanation:

Alkaline phosphatase is significantly elevated in pregnancy

Question:

The following patients all attend for a medication review in your morning clinic. They all have atrial fibrillation (AF) and are taking multiple medications.

Which patient should stop taking anticoagulation?

A.A 42-year-old woman with a swollen leg and a Wells score of 2. A same day ultrasound is not available

B.A 51-year-old woman with hypertension and diabetes

C.A 65-year-old woman who has undergone catheter ablation

D.A 75-year-old man who is otherwise fit and well

E.An 80-year-old man who has undergone left atrial appendage closure, surgically preventing clots from entering the bloodstream

Answer:An 80-year-old man who has undergone left atrial appendage closure, surgically preventing clots from entering the bloodstream

Explanation:

Patients who've had a catheter ablation for atrial fibrillation still require long-term anticoagulation as per their CHA2DS2-VASc score

Important for meLess important

An 80-year-old man who has undergone left atrial appendage closure, surgically preventing clots from entering the bloodstream can stop taking anticoagulation. Left atrial appendage closure is an alternative treatment to long-term anticoagulation for atrial fibrillation and can be considered if patients do not want to be on long-term medication. The left atrial appendage is a small pouch extending from the left atrium. It is where blood clots form and closing this prevents the clots from entering the bloodstream.

The 42-year-old woman with a swollen leg and a Wells score of 2 requires anticoagulation for her suspected deep vein thrombosis (DVT). Results of a proximal leg ultrasound will not be available within 4 hours so interim anticoagulation is required. Once a DVT is ruled out or treated her CHA2DS2-VASc score can be calculated to assess whether she still requires anticoagulation.

The 51-year-old woman with hypertension and diabetes still requires anticoagulation as her CHA2DS2-VASc score is 3, scoring for hypertension, diabetes and female sex.

The 65-year-old woman who has undergone catheter ablation still requires anticoagulation despite catheter ablation as per her CHA2DS2-VASc score. Having catheter ablation does not mean anticoagulation is not required.

The 75-year-old man who is otherwise fit and well still requires anticoagulation as he has a CHA2DS2-VASc score of 2 (age = 2).

Question:

A 36-year-old woman has a seizure while in the emergency department. This started suddenly and began with an abrupt loss of consciousness and an initial period of stiff muscle contraction, followed by intermittent jerky movements. She has a past medical history of epilepsy for which she takes carbamazepine but has been noted to have poor adherence in the past. The seizure continues for more than five minutes. A dose of IV lorazepam is administered. This unfortunately fails to stop the seizure.

What is the next most appropriate pharmacological management?

A.Buccal midazolam

B.Intravenous carbamazepine

C.Intravenous lorazepam

D.Intravenous phenytoin

E.Rectal diazepam

Answer:Intravenous lorazepam

Explanation:

A maximum of two doses of IV benzodiazepines can be administered during convulsive status epilepticus

Important for meLess important

This patient is in convulsive status epilepticus as the seizure described is a tonic-clonic seizure and has continued for more than five minutes. The BNF recommends initial management of status epilepticus with IV lorazepam, followed by a repeat dose 10 minutes after the first if the seizure recurs or fails to respond.

Buccal midazolam may be used if intravenous access had not already been obtained or if the seizure had occurred in a non-hospital setting. The absorption of intravenous benzodiazepines is faster and therefore more appropriate for the management of status epilepticus.

Intravenous carbamazepine is not indicated in the management of acute seizures or status epilepticus. It is primarily used in the prevention of tonic-clonic seizures.

Intravenous phenytoin is not indicated until two doses of benzodiazepines have been administered. At this stage anaesthetics and critical care should also be involved.

Similarly to buccal midazolam, rectal diazepam is not typically used unless there is no intravenous access or the emergency occurs in a pre-hospital setting.

Question:

A 15-week pregnant woman contacts her GP for advice because her 6-year-old son has recently been diagnosed with erythema infectiosum. She is clinically well and is immune to rubella. The GP arranges serology for parvovirus B19, which reveals parvovirus IgM positive and IgG negative.

What would be the most appropriate management?

A.No action, blood tests show she is immune to parvovirus

B.No action, as she is not in the 1st trimester of pregnancy

C.Refer to fetal medicine for further tests, bloods show a recent infection with parvovirus

D.Refer to fetal medicine if she develops symptoms of parvovirus

E.Refer to fetal medicine even though bloods show immunity to parvovirus

Answer:Refer to fetal medicine for further tests, bloods show a recent infection with parvovirus

Explanation:

Parvovirus B19 is the cause of erythema infectiosum (also known as slapped cheek). It is a common childhood infection, with many adults being previously infected (but the infection being asymptomatic).

Infection with parvovirus B19 is uncommon in pregnancy and the majority of pregnant women with parvovirus infection will deliver healthy babies. However, potential complications can include hydrops fetalis and fetal death. The risk of these complications is similar in symptomatic and asymptomatic women with parvovirus.

Parvovirus B19 is infectious from up to 3 weeks before the rash develops. It is no longer infectious once the rash appears. The risk of transmission increases with gestational age.

Immediate serological testing for parvovirus B19 is required for all pregnant women in contact with someone with a rash consistent with parvovirus. Significant contact is defined as face-to-face or in the same room for more than 15 minutes in the 3 weeks before the index case developed a rash. It is also important to ensure the pregnant woman is immune to rubella.

Blood should be tested for parvovirus B19 specific IgM and IgG.

IgG positive & IgM negative - shows immunity to parvovirus. Reassure, no further action.

IgG negative & IgM positive - non-immune. Recent parvovirus infection in last 4 weeks. Refer immediately for further tests/fetal medicine.

IgG negative & IgM negative - repeat test in 4 weeks. If both tests still negative, this confirms susceptibility, but no recent infection. Reassure, further action required only if subsequent exposure occurs.

Question:

A 38-year old woman who is currently 22 weeks pregnant reports that she had congenital hip dislocation when she was born, which remained undiagnosed for 15 months. She underwent corrective surgery at 15 months however has suffered from hip pain for most of her adult life and has recently been listed for a hip replacement operation due to hip osteoarthritis. She is worried about her child having a congenital hip dislocation.

Which one of the following is a risk factor for congenital hip dislocation?

A.Polyhydramnios

B.Male gender

C.Macrosomia

D.Breech presentation

E.Maternal hypothyroidism

Answer:Breech presentation

Explanation:

The risk factors for congenital hip dislocation include:

Female gender

Breech presentation

Family history

Firstborn

Oligohydramnios

It is more common on the left side and is tested for using the Barlow and Ortolani tests which form part of the baby check. For babies who are at risk of congenital hip dislocation an ultrasound examination can be conducted to screen for the condition.

Question:

A 46-year-old man presents to his GP as he is concerned about reduced libido and erectile dysfunction. His wife also reports that he has 'no energy' and comments that he has a 'permanent suntan'. During the review of systems he also complains of pains in both hands. Which one of the following investigations is most likely to reveal the diagnosis?

A.Ferritin

B.Testosterone

C.Cortisol

D.Blood glucose

E.Prolactin

Answer:Ferritin

Explanation:

Screening for haemochromatosis

general population: transferrin saturation > ferritin

family members: HFE genetic testing

Important for meLess important

The above patient has symptoms consistent with haemochromatosis. Diabetes mellitus itself would not normally cause reduced libido.

Question:

A 69-year-old man is admitted to the emergency department with symptoms of a stroke affecting his right side. On examination he has preserved sensation in his trigeminal distribution and no facial weakness, 5/5 power in right shoulder abduction, elbow flexion and wrist extension, 3/5 power in right hip flexion, knee extension and ankle plantarflexion. His reflexes are equal bilaterally but he has an upgoing plantar reflex on the right and a normal plantar reflex on the left.

Based on the clinical presentation, which of the following blood vessels is most likely to be affected?

A.Superior Sagittal Venous Sinus

B.Right Middle Cerebral Artery

C.Left Middle Cerebral Artery

D.Right Anterior Cerebral Artery

E.Left Anterior Cerebral Artery

Answer:Left Anterior Cerebral Artery

Explanation:

Anterior cerebral artery stroke causes leg weakness but not face weakness or speech impairment

Important for meLess important

The man's right leg is essentially the only thing affected with the rest of his body being spared. This would suggest only the lower limb area of the motor cortex is affected and this is the area which lies on the medial aspect of the cerebral hemisphere and so is supplied by the anterior cerebral artery and drained by the sagittal sinuses. As only one side is affected, the sinus cannot be the culprit as this would affect both sides as it drains both medial hemispheres. Therefore we are left with the artery as the most likely affected vessel and given the right-handed symptoms, the affected vessel must be on the left as the brain works on a contralateral basis.

The middle cerebral arteries would affect the area of the motor and sensory cortexes which maps to the face and arms as this is the area of the homunculus which lies laterally.

Question:

Patricia, 85, was found this morning after she fell during the night in her home. It is suspected that she has broken her hip. However, when she arrives in the emergency department she appears confused, is vomiting and has tea-coloured urine.

She has a past medical history of breast cancer, which was successfully excised and treated with chemotherapy and radiotherapy. She also has type 2 diabetes mellitus and has had a cholecystectomy 10 years ago.

What is the most likely cause?

A.Rhabdomyolysis

B.Urinary tract infection

C.Dehydration

D.Biliary obstruction

E.Renal cell carcinoma

Answer:Rhabdomyolysis

Explanation:

Rhabdomyolysis is a condition where skeletal muscle is damaged and breaks down, resulting in breakdown products such as myoglobin being released into the blood stream. The breakdown products can be harmful to the kidneys and can result in acute kidney injury and renal failure. A major clue in this question was the presence of tea-coloured urine, which is often present in rhabdomyolysis, due to the presence of myoglobin in the urine.

Rhabdomyolysis is a major issue to consider and be aware of in medical practice, especially when working within an emergency department. Elderly patients who fall, as in this scenario, can often be unable to move for hours or days, leading to significant breakdown of skeletal muscle. This breakdown releases cell contents, including myoglobin and electrolytes, which ultimately result in acute kidney injury and electrolyte abnormalities, particularly potassium, calcium and phosphorus.

A urinary tract infection (UTI) could be the answer in this scenario, in that a lot of elderly patients fall due to UTIs and can present as confused. However, given that Patricia fell during the night and only presented to the emergency department this morning rhabdomyolysis must be the primary differential.

Dehydration, biliary obstruction and renal cell carcinoma are all reasonable differentials, but could not be correct when discussing the most likely cause.

Question:

You are reviewing a 50-year-old woman who has just been admitted with pneumonia. You know from her records that she drinks around 60-70 units of alcohol per week. What is the most appropriate drug to prescribe to prevent her getting alcohol withdrawal symptoms?

A.Chlordiazepoxide

B.Carbamazepine

C.Midazolam

D.Clonidine

E.Haloperidol

Answer:Chlordiazepoxide

Explanation:

Question:

A 24-year-old lady presents to her GP where she proceeds to have a convulsive episode involving her whole body in the waiting room. During the episode, she is not able to speak but can make eye contact when her name is called. After the episode she quickly returns to normal and is able to remember everything that happened during the episode. Her past medical history includes post-traumatic stress disorder and alcohol overuse.

What is the most likely diagnosis?

A.Tonic-clonic seizure

B.Focal aware seizure

C.Alcohol withdrawal seizure

D.Panic attack

E.Psychogenic non-epileptic seizure

Answer:Psychogenic non-epileptic seizure

Explanation:

Widespread convulsions without conscious impairment is likely to represent a pseudoseizure

Important for meLess important

Generalised convulsions can indicate a tonic-clonic seizure but in this case, would be associated with a loss of consciousness. A psychogenic non-epileptic seizure (previously called a pseudoseizure) should be considered in a patient who remains conscious during whole-body convulsions, exhibits no post-ictal state and can remember what happened. In this case, the psychiatric comorbidities make psychogenic non-epileptic seizure more likely.

A focal aware seizure would generally not involve whole-body convulsions.

An alcohol withdrawal seizure would present as a generalized seizure and involve loss of consciousness

A panic attack may involve a degree of involuntary movement, including limb shaking. However, widespread convulsions would be unusual in this case, and tearfulness and hyperventilation would usually be prominent symptoms.

Question:

A 35-year-old man who is allergic to peanuts accidentally ingests some during his evening meal. He is brought into the emergency department and given intramuscular adrenaline and nebulised salbutamol to help control his breathing problems.

Given his presentation when can each of the following be repeated?

A.Back to back salbutamol nebulisers and adrenaline every 3 minutes

B.Back to back salbutamol nebulisers and adrenaline every 5 minutes

C.Back to back salbutamol nebulisers and adrenaline every hour

D.Salbutamol nebulisers every 5 minutes and adrenaline every 3 minutes

E.Salbutamol nebulisers every 5 minutes and adrenaline every 5 minutes

Answer:Back to back salbutamol nebulisers and adrenaline every 5 minutes

Explanation:

In the treatment of anaphylaxis, you can repeat adrenaline every 5 minutes

Important for meLess important

This question is asking about the acute management of anaphylaxis. During an attack, you can repeat adrenaline every 5 minutes until symptoms have resolved and you can use nebulisers back to back as long as respiratory symptoms e.g. a wheeze, are still present.

Question:

A 45-year-old man is being reviewed by his GP.

He presented recently with alcohol intoxication and is now willing to cut down his alcohol intake.

He drinks approximately 70cl of vodka on a daily basis. He has already been referred to alcohol addiction services.

His GP has performed some baseline blood tests to screen for alcoholic liver disease.

Hb 132 g/L Male: (135-180)

Female: (115 - 160)

Platelets 151 \* 109/L (150 - 400)

WBC 6.3 \* 109/L (4.0 - 11.0)

Bilirubin 18 µmol/L (3 - 17)

ALP 76 u/L (30 - 100)

ALT 67 u/L (3 - 40)

AST 88 u/L (3 - 40)

γGT 189 u/L (8 - 60)

Albumin 34 g/L (35 - 50)

What would be the most appropriate next-line investigation into this man's liver disease?

A.AFP measurement

B.CT abdomen/pelvis

C.Liver biopsy

D.Transient elastography

E.Upper GI endoscopy

Answer:Transient elastography

Explanation:

Transient elastography may be useful for diagnosing and monitoring the severity of liver cirrhosis

Important for meLess important

The correct answer is transient elastography, often known by the trade name Fibroscan.

This is a measure of the 'stiffness' of the liver which is a reflection of cirrhosis. NICE specifically recommend offering this test to 'harmful drinkers' which is defined as >50 units per week for men and >35 units per week for women.

AFP measurement is incorrect. It is recommended on a 6-monthly basis, alongside ultrasound, for patients with confirmed cirrhosis due to the risk of hepatocellular carcinoma. This is not the case for this patient as he does not yet have confirmed cirrhosis.

CT abdomen/pelvis is not correct. CT is not a first-line investigation for liver disease unless there is a strong suspicion of malignancy such as painless jaundice and weight loss.

Liver biopsy is also incorrect. This used to be the first-line test for cirrhosis but it is invasive and carries risk. It is now only performed if the aetiology of liver disease is unclear from non-invasive testing and would only be recommended by a hepatologist.

Upper GI endoscopy is also not correct in this case. In patients with confirmed cirrhosis then endoscopy is carried out to assess for portal hypertension and varices. These can then be banded prophylactically to reduce the incidence of upper GI bleeding. It is not a first-line investigation unless the patient has signs of active or recent bleeding.

Question:

A 59-year-old man is admitted to the ward following primary percutaneous coronary intervention (PCI) for an acute inferoposterior myocardial infarction. He is recovering as expected until day 5 of his admission when he complains to the nurse that he is feeling suddenly short of breath.

His observations reveal a pulse rate of 118/min , respiratory rate of 24/ min, temperature of 36.8ºC and blood pressure of 90/60 mmHg.

On examination, an early-to-mid systolic murmur is audible and radiates to the axilla.

What is the most likely explanation for this man's current symptoms?

A.Acute mitral regurgitation

B.Dressler's syndrome

C.Left ventricular free wall rupture

D.Left ventricular aneurysm

E.Repeat myocardial infarction

Answer:Acute mitral regurgitation

Explanation:

Rupture of the papillary muscle due to a myocardial infarction → acute mitral regurgitation → widespread systolic murmur, hypotension, pulmonary oedema

Important for meLess important

Ischaemia or rupture of the papillary muscle can lead to acute mitral regurgitation following a myocardial infarction. This is most common following an inferoposterior myocardial infarction. It presents acutely with hypotension and features of pulmonary oedema.

The remaining answers are all potential complications of myocardial infarctions which are not as in keeping with the clinical picture.

Dressler's syndrome refers to recurrent pericarditis following a myocardial infarction, with fever, anaemia, raised erythrocyte sedimentation rate (ESR) and pleural effusions. It typically occurs between 2 and 6 weeks following infarction and can be managed with non-steroidal anti-inflammatory drugs (NSAIDs).

Left ventricular free wall rupture may also present with acute shortness of breath due to heart failure, it is also likely to feature signs of cardiac tamponade, including muffled heart sounds, a raised JVP and pulses paradoxus.

Ischaemia to the myocardium weakens the muscle, allowing a left ventricular aneurysm to form. It can also present with signs of heart failure, but would not explain the systolic murmur heard in this example. Persistent ST elevation following an myocardial infarction may point to a diagnosis of left ventricular aneurysm.

Although a repeat myocardial infarction is a possibility, it would not fully explain the murmur heard. An electrocardiogram (ECG) would be performed to rule out this diagnosis.

Question:

A 62-year-old man is admitted to the Emergency Department with a left hemiplegia. His symptoms started around 5 hours ago but he initially thought he had slept in an awkward position. He has no past medical history of note but on examination is found to have an irregular pulse of 150 / min. The ECG confirms atrial fibrillation. A CT head is immediately arranged and reported as normal. What is the most appropriate initial management in the first 14 days?

A.Aspirin

B.Aspirin + dipyridamole

C.Alteplase

D.Warfarin

E.Aspirin + warfarin

Answer:Aspirin

Explanation:

Rate control should also be initiated. He is outside the thrombolysis window so alteplase is not an option. The 2004 RCP guidelines recommend that anticoagulation should be commenced 14 days after an ischaemic stroke. Earlier anticoagulation may exacerbate any secondary haemorrhage.

Dipyridamole should not be used in the acute phase.

Question:

A 58-year-old is brought in by ambulance with acute left-sided weakness affecting his face, arm and lower limb. He reports these symptoms came on suddenly 2 hours ago whilst cleaning his garage.

He has a past medical history of type two diabetes for which he takes metformin. He works as a solicitor and is usually fit and well.

On examination, heart rate is 80 beats/min, blood pressure 160/80mmHg, oxygen saturations 98% on air, respiratory rate 18/min, temperature 36.5ºC, and blood glucose level 6.5. His pulse is regular, heart sounds normal, chest clear, and abdomen soft non tender.

Examination of the neurological system reveals reduced power 2/5 in the left upper limb, and power 3/5 in the left lower limb. Power is 5/5 in the right upper and lower limbs. Sensation is intact throughout.

There is a left-sided facial droop with forehead sparing. Examination of the visual fields reveals a homonymous hemianopia.

The patient is taken urgently for a CT head, which reveals no intracranial haemorrhage.

CT angiography is performed which demonstrates an occlusion of the right proximal middle cerebral artery.

What is the correct definitive management of this patient?

A.Anti-hypertensives

B.Thrombolysis

C.Thrombolysis and thrombectomy

D.Aspirin 300mg and fondaparinux

E.Aspirin 300mg only

Answer:Thrombolysis and thrombectomy

Explanation:

A combination of thrombolysis AND thrombectomy is recommend for patients with an acute ischaemic stroke who present within 4.5 hours

Important for meLess important

This patient has presented with an acute ischaemic stroke of the anterior cerebral circulation, as manifested by a unilateral hemiparesis and homonymous hemianopia.

The CT angiogram confirms this diagnosis by demonstrating an occlusion of the proximal middle cerebral artery.

NICE updated their stroke guidelines in 2019 to include thrombectomy.

The guidelines state that thrombectomy should be offered as soon as possible and within 6 hours of symptom onset, together with intravenous thrombolysis (if within 4.5 hours), to people who have:

Acute ischaemic stroke and confirmed occlusion of the proximal anterior circulation demonstrated by computed tomographic angiography (CTA) or magnetic resonance angiography (MRA)

We are told that the symptoms came on 2 hours ago, therefore the patient is within the thrombolysis window of 4.5 hours. As the patient has presented within the time window, the correct answer is thrombolysis and thrombectomy.

Aspirin 300mg should be given, but alone this is not the most appropriate management.

Blood pressure should not be lowered in the acute phase of a stroke unless there are complications such as hypertensive encephalopathy or to facilitate thrombolysis.

Question:

A 56-year-old man diagnosed with insulin-dependent type 2 diabetes mellitus has come to the GP following his second episode of severe hypoglycaemia. On both occasions, he had limited awareness of the episodes and his wife needed to treat him with a glucose gel. He holds a group 1 driving licence.

What is the most appropriate advice to give about him driving?

A.Check his blood glucose no less than two hours before starting to drive and every two hours during the journey

B.Continue driving as normal but needs to inform the DVLA of his medical condition

C.Have a snack if his blood glucose is 5.0mmol/L or less

D.He can drive if someone else is with him in the car

E.Stop driving immediately and inform the DVLA

Answer:Stop driving immediately and inform the DVLA

Explanation:

Patient with diabetes who have had two hypoglycaemic episodes requiring help needs to surrender their driving licence

Important for meLess important

Stop driving immediately and inform the DVLA. This is the correct answer. Any patient with diabetes who has had two hypoglycaemic episodes requiring treatment needs to surrender their driving licence.

Check his blood glucose no less than two hours before starting to drive and every two hours during the journey is incorrect. Checking blood sugar no less than two hours before starting to drive and every two hours during the journey is recommended by the DVLA for any patient using insulin to manage diabetes. However in his case, as he has had two severe episodes of hypoglycaemia requiring help from another person he needs to surrender his licence.

Continue driving as normal but needs to inform the DVLA of his medical condition is incorrect. As he has experienced two hypoglycaemic episodes requiring assistance, he must surrender his driving licence. Any patient with diabetes should inform the DVLA of their diagnosis. This doesn't always mean they are unable to continue driving.

Have a snack if his blood glucose is 5.0mmol/L or less is incorrect. DVLA recommends that when a driver checks their blood glucose before driving they should have a snack if their blood glucose is less than 5.0mmol/L. If it is less than 4.0mmol/L they shouldn't drive.

He can drive if someone else is in the car with him is incorrect. He as the driver is solely responsible for driving safely and therefore he needs to be medically fit to drive.

Question:

A 60-year-old man presents to his GP with uncomfortable indigestion-type pain that has been slowly coming on over the past few weeks. He also reports some nausea which is not particularly related to meals. Otherwise he is well, does not report any other gastrointestinal symptoms, has not lost any weight, and is keeping active with his local football club.

The GP orders some blood tests, which show:

Hb 140 g/L Male: (135-180)

Platelets 598 \* 109/L (150 - 400)

WBC 10.0 \* 109/L (4.0 - 11.0)

What is the most appropriate action for the GP to take?

A.Prescribe omeprazole and arrange follow-up in 4 weeks

B.Refer for CT scan

C.Refer for colonoscopy

D.Refer for upper gastrointestinal endoscopy

E.Request urea breath test for Helicobacter pylori

Answer:Refer for upper gastrointestinal endoscopy

Explanation:

People with raised platelet count as well as nausea require a non-urgent referral for dypepsia

Important for meLess important

The correct answer is refer for upper gastrointestinal endoscopy. This patient has some alarm features for possible upper gastrointestinal malignancy, i.e. dyspepsia with associated nausea and elevated platelet count. Thrombocytosis can occur in the context of malignancy as a reaction to inflammation and therefore is included as a criterion in the NICE guidelines for suspected cancer referrals. These guidelines recommend consideration of non-urgent direct access upper gastrointestinal endoscopy for patients aged 55 or over who have dyspepsia with raised platelet count or nausea/vomiting.

Prescribe omeprazole and arrange follow-up in 4 weeks is incorrect because this patient needs to be worked up for a possible upper gastrointestinal malignancy. If upper gastrointestinal endoscopy was normal, then proton pump inhibitors could be considered for management but until cancer is ruled out, the patient should be put on the non-urgent pathway for investigation.

Refer for CT scan is incorrect, as the NICE guidelines recommend a 2-week wait CT scan for abdominal pain or diarrhoea/constipation with weight loss in adults 60 years and over, for suspicion of pancreatic cancer. This patient’s history is more suspicious of an upper gastrointestinal malignancy and therefore upper gastrointestinal endoscopy is more appropriate. The stereotypical presentation of pancreatic cancer is painless jaundice.

Refer for colonoscopy is incorrect. Older patients who have had an unexplained change in bowel habit with or without associated symptoms should be referred for colonoscopy within two weeks, the NICE guidelines do not have a non-urgent colonoscopy recommendation. This patient does not require a colonoscopy, as he is more likely to have oesophageal or stomach cancer than bowel cancer.

Request urea breath test for Helicobacter pylori is incorrect. This infection can cause an inflammatory response in the upper gastrointestinal tract, resulting in gastritis and peptic ulcer disease that is refractory to usual treatment. While testing for H. pylori might be appropriate for this man, it can be done during endoscopy so a separate urea breath test is not required.

Question:

A 26-year-old woman who works as an accountant has recently been fired by her manager, with the reason given being missing deadlines and a reduction in quality of work. She refuted this and says that her manager has never liked her and has wanted to get rid of her since day one.

She has told her close friends and family. Even though she has been reassured by them, she believes her family but actually thinks some of her close friends from work were conspiring with her manager to get rid of her.

Her mental state examination is broadly normal, apart from a preoccupation with her manager and close friends getting rid of her. Her family state she is easily insulted and has a conspiratorial nature.

What is the most likely diagnosis?

A.Borderline personality disorder

B.Paranoid personality disorder

C.Schizoid personality disorder

D.Schizophrenia

E.Schizotypal personality disorder

Answer:Paranoid personality disorder

Explanation:

Paranoid personality disorder may be diagnosed in patients who are overly sensitive and can be unforgiving if insulted, question loyalty of those around them and are reluctant to confide in others

Important for meLess important

Paranoid personality disorder is the correct option as she has taken the firing by her manager (for what sounds like good reasons) very badly and thinks it is a conspiracy enacted by her manager and close work friends. This is a classic paranoid personality disorder manifestation and the fact her family have seen her as someone who is easily insulted and can be paranoid.

Borderline personality disorder is incorrect as this disorder manifests as someone who is not generally paranoid, but more emotionally unstable, with difficult to control tempers and unstable relationships and recurrent suicidal ideation.

Schizoid personality disorder is incorrect as this presents with less paranoia and more with a predilection for solitary activities and a lack of interests and companions.

Schizophrenia is incorrect as the case described above has a broadly normal mental state examination, which would not be true for schizophrenia which would present with delusions, hallucinations and disordered thought.

Schizotypal personality disorder is also incorrect because this presents in someone who has paranoid ideations, but also commonly has magical beliefs, ideas of reference and generally odd behaviours and speech; not seen in the above case on mental state examination or reported by the family.

Question:

A 65-year-old man attends his GP with increasing back pain and weakness in both legs. He states that this has been going on for the last 2 weeks. His past medical history includes type 2 diabetes and colorectal cancer, for which he underwent an anterior resection with stoma formation 3 weeks ago.

On examination, there is bilateral distal paraesthesia of his feet. There is also a significant loss of power when performing the lower limb myotomes.

Given the likely diagnosis, what finding would be expected on examination?

A.Extensor plantar reflexes

B.Fasciculations

C.Hyperreflexia

D.Hyporeflexia

E.Reduced distal pulses

Answer:Hyporeflexia

Explanation:

Progressive peripheral polyneuropathy with hyporeflexia suggests Guillain-Barre syndrome

Important for meLess important

Given this patient's presentation, he is likely suffering from Guillain-Barre syndrome. His recent history of an anterior resection might have played a role in triggering the condition. Surgery, especially involving the gastrointestinal or respiratory tracts, can occasionally lead to immune activation. This immune activation can result in the production of autoantibodies that target gangliosides in the peripheral nervous system, causing peripheral nerve damage and demyelination. The clinical presentation of Guillain-Barre syndrome can vary, but it often involves progressive, symmetrical weakness affecting the distal limbs, along with absent or reduced reflexes. Cranial nerve involvement can also occur, manifesting as symptoms such as bilateral facial nerve palsy and diplopia (double vision). Prompt recognition and treatment are crucial to minimize long-term complications and facilitate recovery.

Hyporeflexia is the correct answer. Guillain-Barre syndrome affects the peripheral nervous system, which can involve either the somatic or autonomic subtypes. Typically, the lower motor neurons of the somatic subtype are involved, leading to reduced reflexes.

Extensor plantar reflexes is incorrect. This is seen in upper motor neurone conditions such as multiple sclerosis. Involvement of the peripheral nervous system in Guillain-Barre syndrome affects the lower motor neurons, which originate from the ventral horn of the spinal cord's grey matter and the motor nuclei of the cranial nerves located in the brainstem.

Fasciculations is incorrect. Fasciculations can rarely be seen in Guillain Barre syndrome however it is not as commonly seen as hyporeflexia. Fasciculations occur when innervation from the peripheral nervous system to the muscle is not working correctly and a muscle is triggered involuntarily. This is rarely seen in Guillain-Barre syndrome as the loss of innervation to the muscles often only last 4-6 weeks, thus often not long enough to result in fasciculations. If the duration of the disease lasts longer, fasciculations may be seen.

Hyperreflexia is incorrect. This is seen in upper motor neurone condition. Reflexes are instead typically reduced in cases of Guillain-Barre syndrome. Examples of upper motor neurone conditions where hyperreflexia is seen include multiple sclerosis and large anterior section strokes.

Reduced distal pulses is incorrect. This is seen in peripheral arterial disease, where the arteries are affected often due to atheroma formation. Guillain-Barre syndrome does not affect the arteries.

Question:

A patient is furious about an aspect of their care you provided. Before you've had a chance to discuss the situation they demand you full name and GMC reference number. What should you do?

A.Withhold this information until you've had a chance to discuss the issue

B.Give them both details

C.Refuse to speak to them until they have calmed down

D.Withhold the information until you know what they intend to do with it

E.Instead give them information regarding your practice's complaints procedure

Answer:Give them both details

Explanation:

The GMC states 'If someone you have contact with in your professional role asks for your registered name and/or GMC reference number, you must give this information to them'

You cannot withhold this information.

GMC ethical guidance: Treat patients and colleagues fairly and without discrimination. Paragraph 64

Question:

A 75-year-old man presents for a review of his long-term condition. He experiences chronic central abdominal pain, which radiates to his back and is associated with nausea.

He is now complaining of new loose stools, which are strong-smelling and difficult to flush.

His current alcohol intake is around 30 units/week, this is unchanged from previous.

Given the most likely diagnosis, what is an appropriate treatment option?

A.Cholestyramine

B.Lifelong gluten free diet

C.Loperamide

D.Pancreatin (Creon)

E.Reassurance and hydration advice

Answer:Pancreatin (Creon)

Explanation:

Replacement of pancreatic enzymes (e.g. Creon) is part of the management of patients with chronic pancreatitis to help aid digestion of food

Important for meLess important

Chronic pancreatitis is a likely diagnosis in this patient due to the characteristics of the pain and the history of alcohol excess, which is a common cause of chronic pancreatitis.

The correct answer is pancreatin (Creon). Pancreatin, often known by the brand name Creon, is a form of pancreatic enzyme replacement, which would be used to aid the digestion of food where there is pancreatic insufficiency. Pancreatin would be taken alongside any food that is consumed by the patient.

Cholestyramine is the wrong answer, as it is a treatment for bile acid malabsorption. Though this may present with chronic diarrhoea and abdominal cramps, chronic pancreatitis is more likely in this patient due to the history of alcohol excess and central abdominal pain radiating to the back.

Lifelong gluten-free diet is the wrong answer and would be the correct management option for coeliac disease. Though we may want to rule this out with a coeliac screen, this is less likely in this patient due to the characteristics of the pain.

Loperamide is the wrong answer. It may be used short-term for patients with diarrhoea, but it is not useful in the management of chronic pancreatitis.

Reassurance and hydration advice is the wrong answer, as this would mean the patient would continue to suffer with unpleasant symptoms. This may be an option in suspected gastroenteritis, in which the mainstay of management would be to improve hydration. Given the clinical history of likely chronic pancreatitis, Creon would be appropriate in attempting to relieve this patient's symptoms.

Question:

A 28-year-old gentleman presents to your clinic. He and his partner have been trying for children for the last 2 years. His wife has had 2 children prior to their relationship. His past medical history is significant for repeated chest infections and repeated bouts of otitis media. He mentions that he often gets upper respiratory tract infections which require antibiotics to fix. This is an ongoing problem since childhood. He believes that there is something wrong his genital tract, this is what he believes is the reason for his difficulty in conceiving. Upon examination, you find no masses, swellings or lumps however you note that his right testicle hangs lower than his left. To ensure he is currently well, you perform a chest examination and notice the apex beat is in the 5th intercostal space on the right midclavicular line. What is the most likely diagnosis?

A.Cystic fibrosis

B.HIV/AIDS

C.Kartageners syndrome

D.Normal variant

E.Drug induced due to heavy antibiotic use

Answer:Kartageners syndrome

Explanation:

Kartagener's syndrome patients have their right testicle hanging lower than left due to situs inversus

Important for meLess important

Normally, the left testicle hangs lower than the right. However, patients with Kartageners syndrome it is reversed. This is due to the patient having situs inversus. Cystic fibrosis can also present similarly if they were not diagnosed at a young age. However, they would have other symptoms such as diabetes, diarrhoea and fat-soluble vitamin deficiencies. Although some antibiotics may impair sperm function and motility, there is nothing in the history to suggest he is currently taking them.

Question:

An 82-year-old lady presents to the orthopaedic ward after a hip replacement. You are asked by the consultant to perform a nutritional assessment of this lady as she weighs 100kg and her body mass index is 33kg/m². She tells you that she has recently been losing weight even though she has not been trying.

Which of the following would be diagnostic of malnutrition in this case?

A.Loss of 2kg in the last week

B.Loss of 5kg in the last 6 months

C.Loss of 10kg in the last 6 months

D.Loss of 5kg in the last 12 months

E.Loss of 10kg in the last 12 months

Answer:Loss of 10kg in the last 6 months

Explanation:

Unintentional weight loss greater than 10% within the last 3-6 months is diagnostic of malnutrition

Important for meLess important

This question is asking about a 100kg woman being assessed for malnutrition on the orthopaedic ward. There are three possible criteria for a diagnosis of malnutrition:

A body mass index of less than 18.5kg/m² (this is not present in this case as her body mass index is 33kg/m²)

A body mass index of less than 20kg/m² and unintentional weight loss greater than 5% within the last 3-6 months (again not present due to her body mass index)

Unintentional weight loss greater than 10% within the last 3-6 months (this is relevant in this case)

Given her weight, we can work out that a loss of 10% of her body weight is around 10kg. This has to occur within 6 months and so the correct answer is option 3.

Question:

A 65-year-old man presents to his GP practice with a 3-day history of increased shortness of breath and wheeze. He reports that he is also coughing more frequently than usual and is bringing up large volumes of green sputum. His sputum is usually white.

You note he has a past medical history of COPD.

Following examination of his chest, you conclude that the patient is suffering with an infective exacerbation of COPD.

Of the following organisms, which is the most common cause of this presentation?

A.Haemophilus influenzae

B.Klebsiella pneumoniae

C.Moraxella catarrhalis

D.Mycoplasma pneumoniae

E.Streptococcus pneumoniae

Answer:Haemophilus influenzae

Explanation:

The most common organism causing infective exacerbations of COPD is Haemophilus influenzae

Important for meLess important

The most common organism causing infective exacerbations of COPD is Haemophilus influenzae. Other bacterial causes include Streptococcus pneumoniae and Moraxella catarrhalis. Respiratory viruses account for around 30% of exacerbations, with the human rhinovirus being the most common.

Klebsiella pneumoniae is classically seen in alcoholics. Chest x-ray features may include abscess formation in the middle/upper lobes and empyema.

Mycoplasma pneumoniae is a cause of atypical pneumonia which often affects younger patients, frequently those living in crowded accommodation. It is associated with a number of characteristic complications such as erythema multiforme and cold autoimmune hemolytic anemia.

Question:

A 63-year-old woman presents to the emergency department complaining of 2 hours of epigastric pain. It is a burning pain with no radiation and was not relieved by Gaviscon. She feels sweaty and nauseous but has not vomited. She has no changes to her bowel habits and no urinary symptoms. She has a past medical history of hypercholesterolaemia and hypertension. She is teetotal but has a 40-pack-year smoking history. On examination, her abdomen is soft and non-tender.

What is the most appropriate next step?

A.Order an ECG

B.Order an abdominal x-ray

C.Order an erect chest x-ray

D.Order an ultrasound abdomen

E.Trial oral omeprazole

Answer:Order an ECG

Explanation:

Acute coronary syndrome may present with atypical chest pain especially in female patients

Important for meLess important

This vignette is describing an atypical presentation of acute coronary syndrome. Older females are at higher risk of atypical chest pain which can include epigastric pain and back pain. The lack of relief with Gaviscon, the autonomic symptoms, and the past medical history are concerning for acute coronary syndrome. Therefore the most appropriate next investigation is to order an ECG .

Ordering an abdominal x-ray is not indicated in this scenario. Abdominal x-rays are an initial investigation to rule out obstruction but this woman has not vomited and has no change in her bowel habit.

Ordering an erect chest x-ray would be useful to rule out an abdominal perforation by looking for free air under the diaphragm. However, the lack of abdominal tenderness points away from this and acute coronary syndrome needs to be ruled out first.

Order an ultrasound abdomen would not be the next investigation. This may be used if there was a suspicion of gallstones. However, this history is not typical of gallstones. Additionally, blood tests would be needed first to look for liver function derangement and more urgent diagnoses should be ruled out first.

Trial oral omeprazole would be a reasonable step once acute coronary syndrome has been ruled out, as this presentation may be due to gastritis. However, this is less likely due to the lack of response to Gaviscon. However, the emergency diagnosis would be acute coronary syndrome and so this must be ruled out first.

Question:

A 7-year-old boy with a history of brittle asthma is brought to the emergency department with worsening dyspnoea and wheezing, unable to talk in full sentences and visible indrawing of intercostal muscles. His mother reports that it started while playing football 1 hour ago. His heart rate is 130/min, respiratory rate 25/min, temperature 37.4ºC, oxygen saturation 91% on room air, and blood pressure is normal.

Capillary blood gas is performed:

pH 7.39 (7.35 - 7.45)

PaCO2 4.8 kPa (4.5 - 6.0)

PaO2 11 kPa (10 - 14)

Na+ 140 mmol/L (135 - 145)

K+ 3.6 mmol/L (3.5 - 5.0)

HCO3- 28 mmol/L (22 - 29)

What feature of this presentation indicates it is life-threatening?

A.He cannot complete sentences

B.His heart rate

C.His respiratory rate

D.The pCO2 value

E.Use of accessory muscles

Answer:The pCO2 value

Explanation:

A normal pCO2 in an acute asthma attack indicates it is life-threatening

Important for meLess important

The correct answer is the pCO2 value. This child is seriously unwell with an asthma attack, and most of the features in his presentation are consistent with a British Thoracic Society definition of acute severe asthma. However, the normal pCO2 value on his arterial blood gas is consistent with a life-threatening attack because it suggests exhaustion and declining respiratory effort. We would expect to find a low pCO2 value and respiratory alkalosis as the child hyperventilates, but as they start to tire, carbon dioxide is retained and the value normalises on blood gas. This is not a reassuring finding!

He cannot complete sentences is incorrect, as this falls under the category of acute severe asthma according to the British Thoracic Society guidelines. Note also that a peak expiratory flow rate (PEFR) was not performed; a PEFR of <33% best or predicted would be consistent with a life-threatening asthma attack, while 33-50% would be consistent with an acute severe asthma attack.

His heart rate is incorrect, as this falls under the category of acute severe asthma according to the British Thoracic Society guidelines.

His respiratory rate is incorrect, as a respiratory rate of 25/min falls under the category of moderate acute asthma according to the British Thoracic Society guidelines. A respiratory rate of greater than 30/min would classify as acute severe asthma.

Use of accessory muscles is incorrect, as this falls under the category of acute severe asthma according to the British Thoracic Society guidelines.

Question:

An 82-year-old attends her GP with breathlessness. She has a past medical history of chronic kidney disease stage 4, high cholesterol, a previous TIA and osteoarthritis. Her medications are clopidogrel, simvastatin and as required codeine.

On examination, heart sounds are normal and regular, the chest is clear with no added sounds and there is no peripheral oedema. Heart rate is 72 beats/minute, blood pressure is 134/75mmHg, oxygen saturations are 97% and respiratory rate is 24 breaths/minute.

Some blood tests are done:

Hb 92 g/L Male: (135-180)

Female: (115 - 160)

Platelets 184 \* 109/L (150 - 400)

WBC 7.3 \* 109/L (4.0 - 11.0)

Na+ 135 mmol/L (135 - 145)

K+ 4.7 mmol/L (3.5 - 5.0)

Urea 12.3 mmol/L (2.0 - 7.0)

Creatinine 225 µmol/L (55 - 120)

eGFR 19 mL/min (>60)

CRP 4 mg/L (< 5)

NT-proBNP 750 ng/litre (<400)

What is the most likely cause of her raised BNP?

A.Anaemia

B.Chronic kidney disease

C.Atrial fibrillation

D.Heart failure

E.Old age

Answer:Chronic kidney disease

Explanation:

Renal dysfunction (eGFR < 60) can cause a raised serum natriuretic peptides

Important for meLess important

In this scenario, the most likely cause of the raised BNP is renal dysfunction. The breathlessness is most likely due to anaemia secondary to her severe chronic kidney failure. There are no signs of heart failure on examination making this less likely.

High levels of BNP can have causes other than heart failure: age over 70 years, left ventricular hypertrophy, ischaemia, tachycardia, right ventricular overload, hypoxaemia (ie pulmonary embolism), renal dysfunction (eGFR less than 60 ml/minute/1.73 m2), sepsis, chronic obstructive pulmonary disease, diabetes, or cirrhosis of the liver).

Question:

An 82-year-old man with advanced Parkinson's disease is seen in the emergency department with a UTI. His summary care record says he has an unsafe swallow, and he has several previous admissions for aspiration pneumonia. As such, he has been placed absolutely nil by mouth. His observations are stable, he is apyrexial and mucus membranes are moist. He is not in any pain.

He has no other medical history and appears well.

He is admitted to the ward. What is the single most important medication to prescribe when admitting him?

A.Co-careldopa

B.Ramipril

C.Morphine

D.Dopamine agonist patch

E.Paracetamol

Answer:Dopamine agonist patch

Explanation:

If a patient with Parkinson's disease cannot take levodopa orally, they can be given a dopamine agonist patch as rescue medication to prevent acute dystonia

Important for meLess important

Morphine is indicated in pain that cannot be controlled with simple analgesia, according to the WHO ladder. This is not the case in this question. Furthermore, they should be used with caution in bowel obstruction, due to the major side effect of constipation.

Paracetamol is not indicated as the patient is apyrexial and not in any pain.

There is no history of HTN so ramipril is not indicated.

It is extremely important to give antiparkinsonian medication to avoid acute dystonia in this gentleman. Co-careldopa can only be given orally. This patient has an extremely unsafe swallow and a history of aspiration pneumonias, so nothing at all should be given orally. If a patient is nil by mouth and needs antiparkinsonian medication, the best option is a dopamine agonist transdermal patch, which will prevent a life-threatening dystonic withdrawal.

Question:

Maggie is a 72-year-old female with non-Hodgkin's lymphoma, admitted to hospital for her third cycle of chemotherapy. Her current observations are blood pressure 125/80mmHg, pulse 70/min, respiratory rate 14/min, and temperature 36.5ºC. During her second cycle of chemotherapy six weeks ago, she had an episode of neutropenia (neutrophils 0.4 x 109/L). Her current bloods are shown below.

Hb 120 g/L Male: (135-180)

Female: (115 - 160)

Platelets 160 \* 109/L (150 - 400)

WBC 4.5 \* 109/L (4.0 - 11.0)

Neuts 0.8 \* 109/L (2.0 - 7.0)

Which of the following options may be appropriate to treat Maggie's neutropenia?

A.Bone marrow transplant

B.Filgrastim

C.Fluoroquinolone

D.Intravenous immunoglobulin (IVIG)

E.Piperacillin with tazobactam

Answer:Filgrastim

Explanation:

Filgrastim is a granulocyte-colony stimulating factor used to treat neutropenia

Important for meLess important

Filgrastim is a granulocyte-colony stimulating factor (G-CSF) used to treat neutropenia in select cases. Maggie is high risk for neutropenia, as she is elderly, with a previous episode of neutropenia, and has a high-risk malignancy. Therefore, it may be appropriate to treat her with G-CSF.

G-CSF is not needed in all types of chemotherapy and is not routinely used unless there is a specific reason, usually in patients at high risk of neutropenia (>20% risk of developing febrile neutropenia).

Examples of patients at high risk of febrile neutropenia include:

The elderly

Those with specific malignancies (e.g. non-Hodgkin's lymphoma, acute lymphoblastic leukaemia)

Previous neutropenic episodes

Those receiving combination chemotherapy and radiation therapy

Before each cycle of chemotherapy, a patient's neutrophil count is checked. If neutropenia is present, there is an increased risk of developing an infection or more severely, neutropenic sepsis. Treatment with G-CSF is considered in these patients as it helps the neutrophil count recover quicker. Therefore, it can be used to reduce the risk of developing neutropenic sepsis, or to prevent delays or dose reductions in the chemotherapy regime.

It seems that G-CSF tends to be used mostly in scenarios where a large benefit is expected. The largest benefit of G-CSF is expected with chemotherapy regimes that are given particularly with the intent to cure or prolong remission, or when there is a risk of febrile neutropenia >40%. Examples of this include chemotherapy regimens for patients with non-Hodgkin's lymphoma (as seen with the patient above), relapsed Hodgkin's lymphoma, germ cell tumours and acute lymphoblastic leukaemia (ALL). G-CSF can also be considered for patients undergoing myeloablative therapy followed by bone marrow transplantation, or in patients with a severe congenital, cyclic, or idiopathic neutropenia. Currently, G-CSF is not recommended for patients with myeloid malignancies, as the data is showing that it may in fact stimulate some of these cancers. Thankfully, G-CSF is well tolerated by most patients and therefore generally the benefits outweigh the risks. For most patients, the only significant side effect is bone pain, which occurs in approximately 15-20% of patients.

Bone marrow transplants are not used in the management of neutropenia.

Fluoroquinolones are used as antibiotic prophylaxis in patients with predicted chemotherapy induced neutropenia. The NICE guidelines suggest that for adult patients (>18 years old) with acute leukaemias, stem cell transplants or solid tumours in whom significant neutropenia is an anticipated chemotherapy consequence, fluoroquinolone can be used as prophylaxis.

Intravenous immunoglobulin is not used in the management of chemotherapy induced neutropenia.

Piperacillin with tazobactam is used in the management of febrile neutropenia.

Question:

An 81-year-old man presents to the emergency department with sudden onset nausea and vomiting. He was walking in the park when he suddenly felt like the 'world around him was spinning' and he started vomiting.

On examination, he look unwell and disorientated. A cranial nerve examination reveals that he is unable to raise his eyebrows, smile or raise his eyelid on the right side. The sensation is also lost on the right side of his face. He also cannot hear from the right ear, which is a new symptom for him. An ataxic gate is noted.

Given the most likely diagnosis, where is the lesion?

A.Left anterior inferior cerebellar artery

B.Left midbrain branches of the posterior cerebral artery

C.Left posterior inferior cerebellar artery

D.Right anterior inferior cerebellar artery

E.Right posterior inferior cerebellar artery

Answer:Right anterior inferior cerebellar artery

Explanation:

Sudden onset vertigo and vomiting, ipsilateral facial paralysis and deafness - anterior inferior cerebellar artery

Important for meLess important

Right anterior inferior cerebellar artery is correct. This patient is presenting with sudden onset vertigo and vomiting, ipsilateral facial paralysis and deafness. These are characteristic features of anterior inferior cerebellar artery occlusion, causing lateral pontine syndrome.

It can be easily confused with a right posterior inferior cerebellar artery stroke, as the symptoms are very similar, but in this case, the cranial nerve nuclei of the pons are also involved. The vomiting is a result of vertigo, which is caused by damage to the vestibular nuclei and intra-axial nerve fibres. The facial nerve palsy, due to damage to the facial nucleus, causes ipsilateral facial palsy. Paralysis of the principal sensory trigeminal nucleus is responsible for the loss of sensation. Damage to the cochlear nuclei and intra-axial nerve fibres causes central deafness. Finally, damage to the middle and inferior cerebellar peduncle causes ataxia. All of these symptoms are unilateral as the nerves from these nuclei do not decussate.

Left anterior inferior cerebellar artery is incorrect. Damage here would cause symptoms on the left side rather than on the right side because the nuclei involved giving rise to nerve fibres that do not decussate.

Left midbrain branches of the posterior cerebral artery is incorrect. Damage here would cause right-sided upper and lower limb weakness and left oculomotor palsy. In this case, the strength is preserved and there is no sign of oculomotor nerve palsy.

Left posterior inferior cerebellar artery is incorrect. An injury here would cause ataxia, nystagmus, dysphagia, ipsilateral facial sensory loss and contralateral upper and lower limb sensory loss. It would not explain the facial motor loss, as the facial nuclei are found in the pons.

Right posterior inferior cerebellar artery is incorrect. Damage here would cause ataxia, nystagmus, dysphagia, ipsilateral facial sensory loss and contralateral upper and lower limb sensory loss. It would not explain the facial motor loss, as the facial nuclei are found in the pons.

Question:

A 25-year-old woman currently on the combined oral contraceptive presents to her general practitioners worried about a new lump in her breast. She first noticed it a month ago and it has not changed since then, even if she expected it to disappear after her menstrual cycle.

On examination, a 4 cm, firm, mobile, well-delineated lump is present in the left inferior quadrant of her breast. It is very mobile, it does not transilluminate, and it is painful. She is quite concerned about it.

What is the most appropriate next step?

A.Reassurance and safety netting

B.Routine referral to breast clinic

C.Safety netting and a routine referral for an ultrasound scan, if the lump grows

D.Urgent referral to the emergency department

E.Urgent two-weeks referral to breast clinic

Answer:Routine referral to breast clinic

Explanation:

Consider non-urgent referral in people aged < 30 years with an unexplained breast lump with or without pain

Important for meLess important

The correct answer is routine referral to breast clinic. This young patient is presenting with a new, unexplained breast lump. The lump is relatively, firm, mobile, and well-delineated. The diagnosis is likely to be a fibroadenoma or a breast cyst. But this patient seems concerned that it has not changed nor disappeared during her cycle and is painful. She is young, so she does not meet the criteria for an urgent referral, as NICE guidelines suggest that patients who are less than 30 years old can be considered for a non-urgent referral if there are any concerns regarding the lump. Hence, she should be referred to a non-urgent clinic, where she will see a specialist. It is important to remark that there are currently no specific NICE guidelines for transgender and non-binary individuals regarding breast lumps, so more research is needed.

Reassurance and safety netting is incorrect in this case. Even if the presentation seems benign, and the diagnosis is likely to be a fibroadenoma or a breast cyst, this patient should be referred using a non-urgent pathway, given that she is concerned about it and it is painful. A specialist will see her in more than two weeks.

Safety netting and a routine referral for an ultrasound scan, if the lump grows is incorrect. Even if the presentation seems benign, she is concerned about it and it is painful. Hence, she should be referred to a non-urgent pathway. A specialist will see her in more than two weeks. Additionally, if there were rapidly evolving changes in her breast lump, she would be referred via an urgent pathway to the breast clinic, rather than routinely for an ultrasound.

Urgent referral to the emergency department is incorrect. This would be indicated if the patient had an infection which made her systemically unwell, accompanying her lump. In this case, she is systemically well and there are no signs of infection or inflammation in her breast lump such as redness, discharge or severe pain, making the option incorrect.

Urgent two-weeks referral to breast clinic is incorrect. This would be the correct option if the patient was older than 30 years old, which she isn't. NICE guidelines suggest that patients who are less than 30 years old can be considered for a non-urgent referral if there are any concerns regarding the lump, rather than a two-weeks referral.

Question:

A 30-year-old man presents with a three month history of night sweats and weight loss. He is a non-smoker and has no past medical history of note. As part of the work-up a chest x-ray is ordered:

© Image used on license from Radiopaedia

What is the most likely diagnosis?

A.Lung cancer

B.Grave's disease

C.Pneumonia

D.Lymphoma

E.Thoracic aortic aneurysm

Answer:Lymphoma

Explanation:

This chest x-ray shows clear widenening of the mediastinum. A goitre, lymphoma and thoracic aneurysm may cause this finding. However, a retrosternal goitre would be contiguous with a neck mass and Grave's disease is uncommon in 30-year-old men. A thoracic aneurysm again would be uncommon in this age group and would not cause night sweats. The most likely diagnosis is therefore lymphoma.

Question:

A 50-year-old man is admitted after falling from scaffolding. He has an open fracture of his tibia with a 15 cm wound. He is neurovascularly intact. What is the best initial course of action?

A.Intravenous antibiotics, photography and application of saline soaked gauze with impermeable dressing

B.Thorough wound debridement in the emergency department

C.Combined skeletal and soft tissue reconstruction on a scheduled operating list

D.Application of external fixator and conversion to internal fixation after two weeks

E.Immediate skeletal stabilisation and application of negative pressure dressing

Answer:Intravenous antibiotics, photography and application of saline soaked gauze with impermeable dressing

Explanation:

The initial management of open fractures should include administration of intravenous antibiotics, photography of wound and application of a sterile soaked gauze and impermeable film. The wound should only be handled to remove gross contamination. The patient is then likely to require definitive skeletal and soft tissue reconstruction.

Question:

A 44-year-old woman presents to the gynaecology clinic complaining of dysmenorrhoea and menorrhagia. She has experienced this for several years. However, is now concerned as it is interfering with her everyday life.

The patient has no relevant past medical history and takes no regular medications.

A transvaginal ultrasound scan is performed which reveals an enlarged, boggy uterus.

What is the most likely diagnosis?

A.Adenomyosis

B.Endometrial cancer

C.Endometriosis

D.Fibroids

E.Ovarian cancer

Answer:Adenomyosis

Explanation:

Woman aged > 30 years with dysmenorrhoea, menorrhagia, enlarged, boggy uterus → ?adenomyosis

Important for meLess important

Adenomyosis is correct. This patient is a female approaching the end of her reproductive years and presenting with dysmenorrhoea and menorrhagia. Examinations reveal an enlarged, boggy uterus. All of these findings should point you toward a likely diagnosis of adenomyosis. Adenomyosis is a condition in which endometrial tissue grows in the myometrium. Adenomyosis is more common in older females approaching menopause.

Endometrial cancer is incorrect. Endometrial cancer usually presents in post-menopausal women with post-menopausal vaginal bleeding. However, patients with endometrial cancer pre-menopause can present similarly to the patient above. However, on transvaginal examination, the most common finding would be a thickened endometrium - not a boggy uterus.

Endometriosis is incorrect. Endometriosis is a good differential for this patient presenting with dysmenorrhoea and menorrhagia. However, the transvaginal scan findings would not be in keeping with a diagnosis of endometriosis. A transvaginal scan would either show nothing or would show clumps of tissue (endometrial tissue) growing in places away from the endometrium. This is not the case for this patient.

Fibroids is incorrect. Again, fibroids are a good differential for this patient presenting with dysmenorrhoea and menorrhagia. However, the transvaginal scan findings would not be in keeping with a diagnosis of fibroids. A scan of a patient with fibroids would likely show the fibroids and so, therefore, this option is incorrect.

Ovarian cancer is incorrect. This option is unlikely to be correct as patients with ovarian cancer rarely present with dysmenorrhoea and menorrhagia as the presenting complaint. Usually, they will present with abdominal/pelvic discomfort and bloating.

Question:

A 32-year-old 1 week post-partum female presents to her local emergency department with a few days history of vaginal bleeding: initially bright red blood which has now changed in colour to become brown. She is changing her sanitary pads once every 3 hours and is worried that the caesarean section birth has caused damage to her womb. On examination she is visibly distressed but afebrile. She is normotensive with a heart rate of 95 beats per minute and a respiratory rate of 19 breaths per minute. Abdominal examination does not cause pain and reveals a caesarean section scar which is pink and not tender. What is the most appropriate management at this stage?

A.Reassure, advise and discharge

B.Insert two large bore cannula and send blood for cross matching

C.Start immediate IV broad spectrum antibiotics

D.Refer for exploratory laparoscopy

E.Admit for IV fluids and observations

Answer:Reassure, advise and discharge

Explanation:

This patient is describing lochia, the bleeding that presents for the first 2 weeks following giving birth, whether this is by vaginal birth or caesarian section. Due to the higher risk of post-partum haemorrhage in caesarian section however, a detailed history and examination should take place in this case for any concerning features.

Lochia typically takes the course of fresh bleeding, which undergoes colour changes before finally stopping. The patient can be reassured and advice should be given to her regarding lochia. Specifically, she should be told that if this begins to smell badly, its volume increases or it doesn't stop, she should seek medical help. In this case the volume is not excessive and there are no concerning features to the lochia or abnormal observations.

Question:

A 27-year-old primigravida presents for a routine midwife check-up. She is currently 26 weeks pregnant and she has not been compliant with her antenatal care.

On examination, the fundal height measures 18cm. Her blood pressure is 109/82mmHg and a urine dipstick is normal. The midwife refers her for an urgent scan which reveals oligohydramnios.

The mother is otherwise well and did not suffer from any symptoms during the pregnancy.

What is the most likely cause of the presentation?

A.Duodenal atresia

B.Fetal anaemia

C.Maternal diabetes

D.Renal agenesis

E.Trisomy 21

Answer:Renal agenesis

Explanation:

Oligohydraminos can be a clue that infants have renal agenesis (Potter sequence)

Important for meLess important

The correct answer is renal agenesis. This woman is presenting with oligohydramnios, defined as decreased amniotic fluid volume for gestational age. In this list, the only cause for it is renal agenesis. Renal agenesis causes the fetus not to produce urine, hence the liquid inside the sac will be diminished causing oligohydramnios.

This is usually seen in the context of Potter's sequence, a rare fatal genetic disorder, characterised by severe oligohydramnios, resulting either from polycystic kidney or bilateral renal agenesis. This causes a specific appearance of the newborn, called Potter facies. The affected babies usually die within a few hours of birth or are stillbirths, and have wrinkly skin, low-set ears, flat noses and chins, and widely separated eyes with epicanthic folds.

Duodenal atresia is an incorrect option. This is a cause of polyhydramnios rather than oligohydramnios. In duodenal atresia, the fetus cannot swallow amniotic fluid, increasing the quantity free in the sac, and causing increased fluid for gestational age.

Fetal anaemiais an incorrect option. This is a cause of polyhydramnios rather than oligohydramnios. It can cause high-output heart failure if severe, which, in turn, leads to polyhydramnios.

Maternal diabetes is an incorrect option. This is a cause of polyhydramnios rather than oligohydramnios. Gestational diabetes cause the fetus to have increased urine output, increasing the quantity which is free in the sac, causing increased fluid for gestational age.

Trisomy 21 is an incorrect option. This is a cause of polyhydramnios rather than oligohydramnios. This is due to the fact that trisomy 21 is often associated with duodenal or oesophageal atresia, leading to the fetus being unable to swallow amniotic fluid, increasing the quantity which is free in the sac, causing increased fluid for gestational age.

Question:

A 78-year-old woman presents to the emergency department with sudden onset, severe shortness of breath. She has a computed tomography pulmonary angiogram (CTPA) which shows a pulmonary embolism (PE).

What is the most likely abnormality her ECG will show?

A.PR interval prolongation

B.S1Q3T3 sign

C.Sinus tachycardia

D.ST depression

E.ST elevation

Answer:Sinus tachycardia

Explanation:

The most common ECG change in PE is sinus tachycardia

Important for meLess important

This is a common trick question used in exams. Some text books and other sources will say that S1Q3T3 is the ECG pattern found with PE. However, this very rarely occurs, and sinus tachycardia is much more common, occurring in around half of all people with a PE. The other options are not associated with a PE.

Question:

A 57-year-old woman with a recent diagnosis of breast cancer is found to be positive for a BRCA1 mutation on genetic screening. She has a strong family history of breast cancer, with both her mother and aunt receiving treatment for the condition at a young age.

She is concerned that she may have passed the gene onto her son and daughter. She is also concerned that her sister may have the gene, given her family history.

In counselling this lady, which of the following is the most appropriate statement with regards to the risk of her family inheriting the BRCA1 gene?

A.Sister and daughter have a 50% chance of inheriting the gene while her son has a 25% risk

B.Both children and her sister have a 25% chance of inheriting the gene

C.Both children and her sister have a 50% chance of inheriting the gene

D.Both children have 25% chance of inheriting the gene while her sister has a 50% chance

E.Both children and her sister have a 100% chance of inheriting the gene

Answer:Both children and her sister have a 50% chance of inheriting the gene

Explanation:

There is a 50/50 chance of siblings and children of BRCA1 carrier to also have the gene

Important for meLess important

While BRCA1 and 2 mutations only account for 5-10% of breast cancers, it is reasonable to suspect a genetic component when there is a strong family history of any form of malignancy. BRCA gene mutations are almost always heterozygous and are inherited in an autosomal dominant fashion. As such, having one parent with the mutation results in a 50% chance of that gene being passed on to a child.

1) Gender differences in inheritance can only occur if the mutation in question is X or Y linked, which is not the case with BRCA1. Additionally, if this would the case, it could not be a 25% risk for the son.

2) A 25% risk is only possible of a causative mutation is autosomal recessive, and then it would only be true for the development of the condition. The risk of inheriting a faulty gene is still 50%, which is what the question is asking.

3) is correct

4) As for 2, it is only possible to have a 25% risk in the context of autosomal recessive mutations.

5) It would only be possible to have a 100% risk for everyone if both the patient and her mother were homozygous for the BRCA1 mutation, and her father was at least a carrier. As the vast majority of BRCA1 mutations are heterozygous, this is an unlikely scenario.

Question:

A 65-year-old woman presents to her GP with a 6 month history of back and leg pain while walking and has noticed a reduced walking distance over the past 2 months due to an increase in the severity of pain. She finds that bending over relieves her pain. She struggles to walk downhill after managing to walk uphill with no symptoms. She has a past medical history of type 2 diabetes.

On examination, distal foot pulses are present, there is no weakness or atrophy of the leg muscles.

What is the most likely diagnosis?

A.Ankylosing spondylitis

B.Cauda equina syndrome

C.Osteoarthritis

D.Peripheral arterial disease

E.Spinal stenosis

Answer:Spinal stenosis

Explanation:

Any patient presenting with symptoms of intermittent claudication not worsened by increasing exertion - neurogenic not ischaemic

Important for meLess important

Spinal stenosis - central canal narrowing results in symptoms that mimic peripheral arterial disease. A chronic history of intermittent claudication immediately suggests peripheral arterial disease. However, the nature of exertional pain (downhill vs uphill) and relief by bending over (relieves pressure on nerves/cord) points away from an ischaemic cause. The increase in symptom severity causing her walking distance to reduce results from the progressive narrowing of the central canal. This can be confused as worsening occlusion in peripheral arterial disease and must be differentiated by combining all the pieces of the history together. Before MRI scanning, a bicycle test used to be diagnostic in differentiating peripheral arterial disease from other differentials.

Ankylosing spondylitis - usually presents at a younger age and is more common in men. Morning stiffness, joint swelling and pain are common. Relieved by exercise, not by rest.

Cauda equina syndrome - acute onset back pain, radiating to legs with bowel/urinary dysfunction. The history in the scenario points to a chronic condition.

OA - it is common for patients to complain of joint pain radiating down the leg with paraesthesia. However, pain from OA usually increases throughout the day and is not immediately relieved on posture changes and cessation of exercise. Examination of the affected joint(s) would reveal limited passive and active movements and joint swelling.

Peripheral arterial disease - intermittent claudication worsening by exertion is the typical presentation. Remember, peripheral arterial disease is angina of the legs and anything that increases workload on the muscles will increase pain. The history of no pain walking uphill but downhill is a clear sign directing the differentials away from vascular pathology. Neurogenic symptoms also point away from peripheral arterial disease.

Question:

A concerned father brings his 10-month-old daughter to the GP because he is concerned about her development.

You perform a developmental assessment.

Which of the following findings in the child is concerning?

A.An expressive vocabulary of three words (daddy, mummy, drink)

B.Picks up objects with a pincer grip, with a preference for the right hand

C.Plays alone, does not share toys

D.Casts bricks

E.Unable to walk independently

Answer:Picks up objects with a pincer grip, with a preference for the right hand

Explanation:

Hand preference before 12 months is abnormal - it could be an indicator of cerebral palsy

Important for meLess important

Hand preference before 12 months is abnormal. If a child has a strong preference for one hand over the other, this may suggest neuromuscular problems with the other limb - most likely cerebral palsy.

An expressive vocabulary of three words should be reached by 12 months. Therefore this is an encouraging sign in a 10-month-old.

Playing alone is normal at this age. Children are only expected to begin to share toys by 3 years of age.

Casting bricks is normal until 18 months. It is only if it persists until after 18 months that it becomes abnormal.

Finally, independent walking should develop by 9 - 18 months, with 18 months being the threshold for worry.

Question:

Following the 2011 NICE guidelines on the management of panic disorder, what is the most appropriate first-line drug treatment?

A.Propranolol

B.Selective serotonin reuptake inhibitor

C.Benzodiazepine

D.Imipramine

E.Amitriptyline

Answer:Selective serotonin reuptake inhibitor

Explanation:

Question:

A 72-year-old woman presents to the emergency department with left-sided constricting chest pain. Her symptoms have been present for 60 minutes. She appears short of breath and sweaty.

Her ECG is shown below.

© Image used on license from Dr Smith, University of Minnesota

What is the likely diagnosis based on her clinical presentation and ECG?

A.Anteroseptal myocardial infarction

B.Inferolateral myocardial infarction

C.Pericarditis

D.Posterolateral myocardial infarction

E.Pulmonary embolism

Answer:Posterolateral myocardial infarction

Explanation:

Posterolateral myocardial infarction is the correct answer. The patient in the vignette has features of ischaemic chest pain (left-sided, constricting nature of the pain and the associated dyspnoea and sweatiness). The ECG in the vignette shows a regular sinus rhythm with a rate of approximately 85 beats per minute and no axis deviation. There is some ST elevation in leads I, aVL and V6, which is consistent with a lateral MI. ST depression in V1-V3 (significant in V3) and large, broad R waves in several leads are consistent with a posterior myocardial infarction. Therefore overall, this fits with a posterolateral MI. There are occasional, irregular broad QRS complexes, consistent with ventricular ectopic beats; which are benign.

Posterior infarction is rarely isolated and often occurs in the context of lateral or inferior STEMIs, so it is important to consider this when looking at ECGs. Posterior myocardial infarction is characterised by changes in leads V1-V3, such as ST depression, broad R waves, upright T waves and a dominant R wave in V2. These ECG changes are reciprocal/inverted compared to the usual changes seen in a STEMI. This is due to the location of normal chest leads in relation to the vascular territory affected. Posterior leads (known as V7-9) on the posterior chest wall will demonstrate ST elevation.

Anteroseptal myocardial infarction is incorrect. This type of MI is most associated with ST elevation in leads V1-V4, which we don't see in this ECG.

Inferolateral myocardial infarction is incorrect. Though there are changes consistent with a lateral STEMI and possibly some ST elevation in lead II, there is no evidence of ST elevation in leads III and aVF, which is what we expect in an inferior infarction, therefore this doesn't fit with an inferolateral picture.

Pericarditis is incorrect. In pericarditis, the typical ECG picture is saddle-shaped ST elevation and PR depression. In particular, in pericarditis, the changes are seen across the whole ECG. In contrast, we expect changes in specific leads (like in this case) associated with specific cardiac territories in cardiac ischaemia.

Pulmonary embolism (PE) is incorrect. Though the shortness of breath is consistent with a PE, the pain is more consistent with a cardiac cause (left-sided, crushing/constricting pain) than a PE (pleuritic pain, worse on expiration). In addition, ECG changes in PE are:

Sinus tachycardia (most common in practice),

New right bundle branch block, or

The classic but rarer 'S1Q3T3' pattern seen in leads I and III.

The changes in this ECG are not consistent with PE.

Question:

A 25-year-old woman presents to her GP with oligomenorrhoea. She has had 3 menstrual periods in the last 12 months. She also complains of bloating and acne.

BMI is calculated at 28kg/m². Blood tests are performed as below:

Test Result Normal range

Follicular phase FSH 4 IU/L (3.9-8.8 IU/L)

Follicular phase LH 20 IU/L (2.1-10.9 IU/L)

Testosterone 4.0 nmol/L (<2.7 nmol/L)

Sex hormone binding globulin 10 nmol/L (19-145 nmol/L)

Prolactin 720 pmol/L (<700 mIU/L)

What further investigation is currently the most useful?

A.9am cortisol

B.CT adrenal glands

C.CT brain

D.Pelvic ultrasound scan

E.Urine dipstick

Answer:Pelvic ultrasound scan

Explanation:

Women with suspected PCOS should have the following investigations: pelvic ultrasound, FSH, LH, prolactin, TSH, testosterone, sex hormone-binding globulin (SHBG)

Important for meLess important

Given the clinical history and results above, the most likely diagnosis is polycystic ovarian syndrome. Women with suspected PCOS should have the following investigations, as recommended by NICE: pelvic ultrasound, FSH, LH, prolactin, TSH, testosterone, and sex hormone-binding globulin. The correct answer is pelvic ultrasound scan to assess for multiple ovarian cysts.

9am cortisol is the wrong answer. In this case, this is not the next most appropriate investigation as there is no clinical suspicion of Cushing's syndrome. NICE recommends further investigations to rule out other causes of hyperandrogenism in the following cases:

There are signs of virilization, for example, deep voice, reduced breast size, increased muscle bulk, and clitoral hypertrophy.

There is rapidly progressing hirsutism (less than 1 year between hirsutism being noticed and seeking medical advice).

The total testosterone level is significantly elevated (greater than 5 nmol/l or more than twice the upper limit of the normal reference range).

CT adrenal glands is the wrong answer as it is not indicated at present as there is no suspicion of adrenal pathology. See above for NICE recommendations on when to investigate other potential causes of hyperandrogenism.

CT brain is the wrong answer. Although this patient has a raised prolactin level, this is only mildly elevated which may be seen in patients with PCOS and is not necessarily a sign of prolactinoma.

Urine dipstick is the wrong answer as the patient has not complained of any urinary symptoms. It would be useful to perform a urine pregnancy test instead, this is imperative when a patient first presents with oligo or amenorrhoea.

Question:

A 27-year-old woman presents to the emergency department with left-sided pleuritic chest pain. The patient also describes shortness of breath and has had several episodes of coughing blood. These symptoms began 4 hours previously. She has no other symptoms at this time and has not suffered anything similar in the past. The patient is currently receiving treatment for cervical cancer. Her renal function at this time is normal. She has a negative pregnancy test. A chest X-ray was performed and revealed no abnormalities.

Given the likely diagnosis, what is the first-line investigation?

A.CT aortogram

B.CT pulmonary angiogram

C.CT thorax without contrast

D.D-dimer

E.V/Q scan

Answer:CT pulmonary angiogram

Explanation:

Pulmonary embolism - CTPA is first-line investigation

Important for meLess important

CT pulmonary angiogram is correct. The likely diagnosis, in this case, is a pulmonary embolism (PE). Pleuritic chest pain, shortness of breath, haemoptysis, and active cancer all point to PE as the likely diagnosis. Given this, it would be appropriate to calculate a Wells score for PE. This scenario gives a score of 5 (PE most likely diagnosis, haemoptysis, and active malignancy) for this patient. NICE recommends all patients with a Wells for PE of 4 or more proceed to further imaging. The patient has no contraindications to receiving contrast dye, so CT pulmonary angiogram would be the first line of investigation.

A CT thorax without contrast is incorrect. This is because this investigation is not sensitive enough to detect a PE, therefore, would add no diagnostic value. Furthermore, given the patient's high Wells score, it would be appropriate to proceed straight to CTPA, making this option incorrect.

CT aortogram is incorrect. While this could be considered if there was a concern about aortic dissection, the likely diagnosis in this scenario is PE.

V/Q Scan is incorrect. While you could consider a V/Q scan in this scenario as an imaging modality for PE, it is not the first line. It is mainly used in pregnant women and with kidney disease to avoid the use of contrast. The blood tests show that her kidney function is normal, and she has a negative pregnancy test. Therefore, there is no contraindication to CT pulmonary angiogram.

D-dimer is incorrect. Given the patient's Wells score of 5, it is appropriate to proceed straight to CT pulmonary angiogram. If the patient's Wells score was 4 or less, doing a D-dimer before the CT pulmonary angiogram would be appropriate.

Question:

A 27-year-old woman is admitted to the acute medical unit with worsening shortness of breath, haemoptysis and pleuritic chest pain. A CTPA confirms the presence of a pulmonary embolism (PE) and she is commenced on apixaban.

Both her mother and older brother have a history of venous thromboembolism.

Which of the following conditions is the most likely underlying cause?

A.Activated protein S resistance

B.Activated protein C resistance

C.Antithrombin III deficiency

D.Deficiency in von Willebrand factor

E.ADAMTS13 mutation

Answer:Activated protein C resistance

Explanation:

Factor V Leiden mutation results in activated protein C resistance

Important for meLess important

The correct answer is activated protein C resistance.

The most common inherited thrombophilia is factor V Leiden, which is caused by a mutation in factor V, resulting in resistance to inactivation by protein C. Protein C normally acts to inhibit co-factors FVa and FVIIIa as a negative feedback mechanism in the clotting cascade.

Activated protein S resistance would result in thrombophilia, however, it is not involved in the pathophysiology of factor V Leiden and is a less common of thrombophilia. Protein S combines with activated protein C to inhibit clotting co-factors FVa and FVIIIa.

Antithrombin III acts to inhibit clotting factors such as FIIa (thrombin) and FXa. A deficiency in this protein does result in thrombophilia, however, it is less common than factor V Leiden.

Von Willebrand factor is a transporter of FVIII in the blood and acts as a binding surface on damaged endothelium for platelets. Von Willebrand disease is the most common inherited bleeding disorder.

ADAMTS13 is a metalloprotease enzyme that cleaves von Willebrand factor in the blood, allowing for controlled binding and activation of platelets to damaged endothelium. A mutation can result in loss of cleavage and consumption and accumulation of platelets within the endothelial lumen, a condition known as thrombotic thrombocytopenic purpura (TTP). It is a much less common condition than factor V Leiden.

Question:

A 21 year old gentleman is under the cardiologists for investigation of prolonged QT-syndrome. He presents to your surgery with a 5 day history of cough productive of thick, green sputum, fevers and lethargy. Examination reveals a temperature of 39ºC, oxygen saturations of 96% on air and crackles at the right lung base. Which of the following drugs should be avoided in the management of his condition?

A.Co-amoxiclav

B.Metronidazole

C.Doxycyline

D.Erythromycin

E.Amoxicillin

Answer:Erythromycin

Explanation:

A normal corrected QT interval is less than 430 ms in males and 450 ms in females.

Long QT syndrome (LQTS) is a rare inherited or acquired disorder where delayed repolarisation of the ventricles increases propensity to ventricular tachyarrhythmias. This may lead to syncope, cardiac arrest, or sudden death.

It may be diagnosed as an incidental finding on ECG, following a cardiac event (eg, syncope, cardiac arrest) or after sudden death of a family member.

Question:

A 5-day-old baby has her heel prick test done, and it comes back that she has a raised level of immunoreactive trypsinogen (IRT).

What is the most appropriate next test for this baby?

A.Blood film

B.Brain imaging

C.Chest x-ray

D.Sweat test

E.Thyroid function tests

Answer:Sweat test

Explanation:

Newborns with a positive heel prick for CF, i.e. they have a raised immunoreactive trypsinogen (IRT) result, get a sweat test, which will be high if they have CF

Important for meLess important

On day 5 of life, newborns have the heel prick test. They are tested for cystic fibrosis (CF), congenital hypothyroidism, sickle cell disease, and a number of other metabolic diseases. For CF, the levels of IRT are tested, and if they are raised that can indicate CF. The baby should then undergo the sweat test, and if this is raised, this confirms a diagnosis of CF.

Question:

An 85-year-old male is admitted to the acute medical ward with a deep ulcer over the inferior aspect of his heel which reaches the bone. He had not noticed it and seems unconcerned. His daughter, who brought him into hospital, says that he has poor sensation in his feet and rarely takes off his socks and shoes. His past medical history includes type 2 diabetes, for which he is on a biphasic insulin regime.

His temperature is 37.9ºC, and his heart rate is 101/min.

What is the best method to confirm the likely diagnosis?

A.Biopsy

B.CT

C.MRI

D.Repeat clinical examination

E.Ultrasound

Answer:MRI

Explanation:

Osteomyelitis: MRI is the imaging modality of choice

Important for meLess important

This man has a deep foot ulcer with signs of systemic inflammation (fever and tachycardia) suggestive of an infection. His poor sensation in his feet hints at diabetic neuropathy and a diabetic foot ulcer which we have been told goes through to the bone. Diabetic foot ulcers are usually on pressure areas and may not be noticed by patients due to the reduced sensation so his apparent lack of concern should not reassure you. These features suggest that this man has osteomyelitis and, as such, MRI is the imaging modality of choice to delineate the surgical anatomy and the depth of the infection. This will guide initial treatment, which will likely be a prolonged course of IV antibiotics, and repeat scans will be compared to the initial MRI.

A biopsy will likely cause damage to the area, and will not delineate the depth of the infection.

A CT scan would be an appropriate second choice if MRI were unavailable. However, it is an inferior imaging modality for this scenario.

Repeat clinical examination would add nothing further and so is inappropriate. Urgent imaging must be requested and the patient should have blood cultures taken and be started on empirical IV antibiotics in the meantime.

Ultrasound is a poor method of imaging for bone pathology, as sound does not transmit through hard objects anywhere near as well as soft tissue. Therefore, it is incorrect.

Question:

A 4-year-old boy is brought in by his mother. He was mildly unwell yesterday with a fever, lethargy and sore throat. Today, his mum is alarmed as she has noticed 'blisters' in and around his mouth and he is reluctant to eat or drink. On examination the child looks miserable, but not unwell, his temperature is 38.2ºC and he has a mix of shallow ulcers and erythematous papules scattered over his hard palate, tongue and lips. Examining further you also notice that there are a few erythematous maculopapular lesions along the sides of his fingers, around his right heel and over his buttocks. What is the most likely diagnosis?

A.Chicken pox

B.Measles

C.Shingles

D.Hand, foot and mouth disease

E.Pompholyx eczema

Answer:Hand, foot and mouth disease

Explanation:

The answer here is hand foot and mouth disease. The typical clinical features are seen in the history- a mild illness with systemic upset, sore throat, fever, then oral ulcers and lesions on the hands and feet. It is important to note that the lesions may also be found around the groin or buttocks. The rash is typically made up of 25 mm scattered erythematous macules and papules, often with a central greyish vesicle. Pompholyx eczema is not the answer as it does not cause mouth ulcers or systemic upset. The distribution of this rash would not be in keeping with chicken pox or shingles which would affect a single dermatome. With chicken pox, the affected child is often well with the rash as the first presenting feature. The answer is not measles either - in this illness you may expect fever, coryza, conjunctivitis and Koplik spots- small gray-white spots on the inside of the cheeks.

Question:

A 27-year-old patient involved in a car crash is treated in the intensive care unit. The patient has a difficult airway and has had several traumatic intubations during his ICU stay and now has a persistent air leak in the ventilator circuit. He is developing recurrent hospital-acquired pneumonia.

On examination, crackles and dullness to percussion are heard at the lung bases. Breath sounds are present throughout the lung fields.

Hb 137 g/L Male: (135-180)

Female: (115 - 160)

Platelets 356 \* 109/L (150 - 400)

WBC 12.9 \* 109/L (4.0 - 11.0)

What is the most likely reason for this patient’s recurrent pneumonia?

A.Atelectasis

B.Immunodeficiency

C.Lung cancer

D.Pneumothorax

E.Tracheo-oesophageal fistula

Answer:Tracheo-oesophageal fistula

Explanation:

Long term mechanical ventilation in trauma patients can result in tracheo-oesophageal fistula formation

Important for meLess important

Tracheo-oesophageal fistula is correct. This patient has had several traumatic incubations and has an air leak, both of which indicate that this is the correct answer. Other signs may include aspiration of gastric contents from the endotracheal tube. Tracheo-oesophageal fistulas occur in 0.3 - 3% of patients with prolonged mechanical ventilation due to chronic trauma from endotracheal tube causing necrosis and are more likely if high endotracheal cuff pressures are used. They increase the risk of developing recurrent pneumonia.

Atelectasis is incorrect. Whilst this is a common cause of hospital-acquired pneumonia, it typically presents with reduced breath sounds and does not explain the crackles heard across the patient's chest.

Immunodeficiency is incorrect. Whilst this would increase the risk of recurrent pneumonia, the patient's WBC is high in this history but would be low in immunodeficiency.

Lung cancer is incorrect. This patient is young so lung cancer is unlikely, especially in the absence of other signs e.g. haemoptysis, lymphadenopathy or neurological symptoms.

Pneumothorax is incorrect. Patients with pneumothorax usually have hyper resonance at the lung fields and reduced breath sounds. It does not explain the crackles heard at the lung bases of this patient.

Question:

A 31-year-old nulliparous woman presents to the clinic with a painless breast lump that she noticed while showering yesterday. She is concerned about breast cancer as her friend died from it last year. She has no past medical history, is usually well and active, and is a non-smoker. There is no history of trauma to the breast.

Examination shows a 2-3cm firm, smooth, mobile, non-fluctuant lump in the upper inner quadrant of the left breast. The overlying skin is normal bilaterally. There is no nipple discharge or inversion, and there is no lymphadenopathy.

What is the most appropriate next step for this patient?

A.Fine needle aspiration of the lump

B.Flucloxacillin

C.Mammogram

D.Observation and reassurance

E.Ultrasound of the lump

Answer:Ultrasound of the lump

Explanation:

Fibroadenomas are mobile, firm breast lumps often described as a 'breast mouse'

Important for meLess important

The correct answer is ultrasound of the lump. The history and examination of this lump are stereotypical of a benign fibroadenoma, these are sometimes described as a ‘breast mouse’. Fibroadenomas are common, especially in younger women, and are caused by a benign overgrowth of glandular and fibrous tissue. The majority of these will spontaneously regress without intervention, however, clinical examination alone should not be relied upon to rule out cancer. As the woman is under 35 years of age, an ultrasound is preferred over a mammogram.

Fine needle aspiration of the lump is incorrect. This is part of the triple assessment as one of the options for histological or cytological analysis of a breast lump, allowing a definitive diagnosis of the lump. However, the history and examination of this patient is stereotypical of a benign fibroadenoma so referral for more invasive investigations is not indicated at this point. If any features of the lump started to change or the lump failed to regress, a triple assessment with imaging and histological/cytological analysis would be appropriate.

Flucloxacillin is incorrect, as this is an antibiotic used for the treatment of infective breast lumps such as infective mastitis or breast abscess. The woman has no features suggestive of infection such as pain, erythema, warmth, or systemic signs such as fever so antibiotics are not indicated here.

Mammogram is incorrect. There are two pathways for getting a mammogram, including screening and diagnostic. Breast screening mammograms for most UK women start at 50 years of age, but mammograms can be requested before this if indicated for breast lumps (preferred over ultrasound for over 35-year-olds). Therefore for diagnostic imaging of this breast lump in an under-35-year-old, an ultrasound would be more appropriate than a mammogram.

Observation and reassurance is incorrect. Although this lump is most likely to be benign and the woman has no red flags for cancer (e.g. skin changes, nipple discharge/inversion, inflammation unresponsive to treatment, strong family or personal history of breast cancer), it should still be imaged for more diagnostic certainty, therefore, observation and reassurance is incorrect.

Question:

A patient has come to see you their GP. He explains how he has developed lumps underneath his nipples after starting a prescribed medication. You can see this is quite distressing for the patient and he asks for an alternative. In his notes, you see he recently started spironolactone for congestive heart failure.

Spironolactone should be switched with which of the following diuretics?

A.Chlorothiazide

B.Furosemide

C.Indapamide

D.Acetazolamide

E.Eplerenone

Answer:Eplerenone

Explanation:

Eplerenone can be used in patients with troublesome gynaecomastia on spironolactone

Important for meLess important

Spironolactone inhibits free testosterone from binding to androgen receptors in cells located in the breast. Eplerenone is much less likely to exhibit these same effects and is the only potassium-sparing diuretic.

Question:

An 80-year-old man is due for an elective knee replacement at 1 pm. It is now 11 am and he reveals that he drank a black coffee 30 minutes ago.

What is the most appropriate step to take?

A.Call up theatres to cancel the operation

B.Call up theatres to move the patient to a later time slot

C.Inform him he should not drink anything from now on

D.Ring up the anaesthetist to ask if the patient can still have his operation at 11am

E.Inform him he can drink up to 1 hour before the operation

Answer:Inform him he should not drink anything from now on

Explanation:

Patients can drink clear fluids up to 2 hours before an operation

Important for meLess important

Black coffee is an example of a clear fluid, therefore the patient can still have his operation at 1 pm as long as he does not drink anything from now on.

Calling up theatres to cancel the operation or to move the patient to a later time slot are incorrect as the patient can still have his operation.

Ringing up the anaesthetist to ask if the patient can still have his operation would have been appropriate if the patient had drunk fluids less than 2 hours before his operation so that they are aware and to ask what they would advise.

Informing him that he can drink up to 1 hour before the operation is incorrect as it is 2 hours.

Question:

A 65-year-old female presents with a 2-day history of progressive loss of vision and painful eye movements in her right eye. She has a past medical history of type 2 diabetes mellitus, hypertension and multiple sclerosis. Her current medications are baclofen, lisinopril and metformin.

On examination, no eye changes are visible. Her visual acuity is 6/6 in the left eye and 6/18 in the right eye. Cranial nerves III-XII are grossly intact. She is vitally stable and afebrile. On fundoscopy, no abnormality is detected.

Given the likely diagnosis, which of the following treatment options is most likely to be useful?

A.Chloramphenicol eye drops

B.Latanoprost eye drops

C.Oral methylprednisolone

D.Panretinal photocoagulation

E.Prednisolone acetate eye drops

Answer:Oral methylprednisolone

Explanation:

MS: high dose steroids can be used in the management of acute relapse

Important for meLess important

This patient is most likely suffering from optic neuritis in the context of a relapse of her multiple sclerosis. Two-thirds of cases of optic neuritis are retrobulbar and therefore do not show any fundoscopic changes.

NICE guidelines state: 'Short courses of high-dose corticosteroids are often used in the treatment of relapses but are not indicated in all cases (for example some mild relapses). The standard treatment is oral methylprednisolone 0.5 g daily for 5 days '.

Chloramphenicol is an antibiotic used in the treatment of bacterial eye infections such as bacterial conjunctivitis.

Latanoprost is a prostaglandin analogue used in the management of open-angle glaucoma.

Panretinal photocoagulation is used to treat retinal neovascularisation in conditions such as proliferative diabetic neovascularisation.

Steroid eye drops are not typically used in the management of optic neuritis. The optic nerve is posterior to the eye which means topical formulations will not penetrate to the optic nerve sufficiently. Prednisolone acetate eye drops are used for short-term treatment of superficial inflammatory disorders such as allergic conjunctivitis.

Question:

A 35-year-old man presents to his GP surgery as he is having some difficulties with his hearing. He now struggles to follow conversation and often has the TV volume turned up high. Otoscopy is normal. An audiogram is requested:

What does the audiogram show?

A.Bilateral mixed hearing loss

B.Right conductive hearing loss

C.Normal hearing

D.Bilateral conductive hearing loss

E.Bilateral sensorineural hearing loss

Answer:Normal hearing

Explanation:

Question:

A 54-year-old woman attends the GP with a one-day history of hearing loss in her right ear. There is no discharge or pain. She has no history of dizziness or tinnitus.

Assessment by otoscopy shows wax in the right ear with no other obvious changes to the external auditory meatus or tympanic membranes bilaterally. Weber test lateralises to the left side. Rinne test shows air conduction louder than bone conduction bilaterally.

What is the most appropriate next step?

A.Antibiotic ear drops and review in one week

B.Oral antibiotics and review in one week

C.Referral for ear syringing and review in one week

D.Routine referral to ENT

E.Urgent referral to ENT

Answer:Urgent referral to ENT

Explanation:

Acute sensorineural hearing loss is an emergency and requires urgent referral to ENT for audiology assessment and brain MRI

Important for meLess important

In this patient, Weber's test lateralized to the left, which indicates a conductive hearing loss in the left ear or sensorineural loss in the right ear. Rinne's test found air conduction was louder than bone conduction in both ears. Therefore this patient has a sensorineural hearing loss in the right ear. Acute sensorineural hearing loss is an emergency and requires urgent referral to ENT for audiology assessment and brain MRI. This is because serious pathology such as a vestibular schwannoma needs to be ruled out immediately.

There are no obvious features of infection so antibiotics would not be indicated. Infection of the external ear, acute otitis externa, is often treated with a topical acetic acid spray containing neomycin. Acute otitis externa symptoms include itching, discharge and pain.

Otitis media may be treated with oral antibiotics, however, the majority of cases are caused by a virus following an upper respiratory tract infection. Otitis media symptoms include conductive hearing loss and pain.

Examination by otoscopy revealed wax in the right ear, however, this would cause conductive hearing loss. Referral for ear syringing is therefore not required. Where problems are associated with wax accumulation, topical treatments such as olive oil can be tried first to soften the wax.

Routine referral to ENT would not be quick enough. Patients may have to wait a number of months before being seen in a routine clinic. Acute sensorineural hearing loss requires an urgent referral for audiology assessment and brain MRI.

Question:

A 60-year-old man presents to his GP with a progressive dry, itchy right eye and associated blurring of his vision. The patient and his family have also noticed he has difficulty fully closing his eyelid. The patient is known to have hypertension and type 2 diabetes but has no previous hospital admission or eye issues in the past.

On examination, the patient has evidence of miosis, partial ptosis, anhidrosis of the face and enophthalmos.

What is the most likely cause of this patient’s presentation?

A.Carotid artery dissection

B.Cavernous sinus thrombosis

C.Cerebral vascular event

D.Pancoast tumour

E.Syringomyelia

Answer:Pancoast tumour

Explanation:

Horner's syndrome - anhydrosis determines site of lesion:

head, arm, trunk = central lesion: stroke, syringomyelia

just face = pre-ganglionic lesion: Pancoast's, cervical rib

absent = post-ganglionic lesion: carotid artery

Important for meLess important

This patient has presented with a collection of signs and symptoms in keeping with Horner’s syndrome. Horner’s symptoms arise from a lesion to the sympathetic nerve trunk and result in miosis, partial ptosis, enophthalmos and varying degrees of anhidrosis on the same side as the patient’s lesion. Lesions can occur anywhere along the sympathetic nerve trunk and the site of these lesions can be determined by the presence and location of anhidrosis. Pre-ganglionic lesions result in anhidrosis of the face only. They are due to causes such as Pancoast tumours, cervical rib and thyroid issues (e.g. thyroid carcinoma, thyroidectomy and goiter).

Carotid artery dissection results in a post-ganglionic lesion. In Horner’s syndrome secondary to post-ganglionic lesion patients normally present without anhidrosis.

Cavernous sinus thrombosis also results in a post-ganglionic lesion and like carotid artery dissections, anhidrosis is absent and sweating is unaffected in these patients.

Cerebral vascular events (i.e stroke) result in central lesions. In Horner’s syndrome due to central lesions patients generally present with anhidrosis of the face, arm and trunks.

In syringomyelia a cysts or cavity forms within the spinal cord resulting in a central lesion. As with strokes these patients present with Horner’s syndrome and anhidrosis of the face, arm and trunk on the affected side.

Question:

A 47-year-old lady presents to the surgical assessment unit with right upper quadrant pain, fever and yellowing of the sclera. Ascending cholangitis is confirmed using imaging. Her past medical history is significant for repeated admissions for biliary colic.

What is the most common causative agent of this condition?

A.Mycobacterium avium complex

B.Clostridium difficile

C.Staphylococcus aureus

D.Escherichia coli

E.Fusobacterium necrophorum

Answer:Escherichia coli

Explanation:

E. coli is a common causative agent for ascending cholangitis

Important for meLess important

Mycobacterium avium complex causes chronic diarrhoea in immunodeficient patients. It is highly unlikely to cause this condition.

Clostridium difficile tends to follow from an antibiotic course. It is highly unlikely to cause this condition.

Staphylococcus aureus would not cause this condition. There would have to be a breach in the skin for them to enter the body.

Fusobacterium necrophorum causes Lemierre's syndrome. It would not cause ascending cholangitis.

Escherichia coli is the most common cause and then it is followed by Klebsiella.

Question:

You review a 51-year-old hypertensive patient who you started on 2.5mg of ramipril one month ago. He is complaining of a tickly cough since starting the medication which is keeping him awake at night. However, is blood pressure is now within normal limits.

What should you advise him?

A.The cough is unlikely to be caused by the ramipril, continue the medication and review in a month

B.The cough should settle within the next month, continue the medication and review in a month

C.Stop the ramipril and prescribe a different ACE-inhibitor

D.Stop the ramipril and prescribe 5mg amlodipine

E.Stop the ramipril and prescribe candesartan

Answer:Stop the ramipril and prescribe candesartan

Explanation:

Angiotensin-receptor blockers should be used where ACE inhibitors are not tolerated

Important for meLess important

ACE inhibitors are commonly associated with a dry, persistent cough. A cough is unlikely to settle without stopping the ACE-inhibitor and prescribing a different class of drug. For a patient under 55 who is intolerant to an ACE-inhibitor the next step would be to offer an angiotensin 2 receptor blocker (ARB), eg candesartan.

Question:

A 33-year-old female is diagnosed with a personality disorder by her community psychiatrist. She has struggled to hold down a job as an assistant store manager as she often finds her colleagues to be lacking in morals or values and is reluctant to delegate work to them. She feels that her colleagues are lazy and do not perform their duties to a sufficiently high standard, as a result, she is often overwhelmed with outstanding tasks that she cannot complete and ends up staying late to get things right.

What personality disorder is she most likely to have been diagnosed with?

A.Avoidant

B.Dependant

C.Narcissistic

D.Schizoid

E.Obsessive-compulsive

Answer:Obsessive-compulsive

Explanation:

Patients with obsessive-compulsive personality can be rigid with respect to morals, ethics and values and often are reluctant to surrender work to others

Important for meLess important

The correct answer here is an obsessive-compulsive personality disorder. This differs to obsessive-compulsive disorder in which patients typically become consumed with repetitive compulsions such as hand washing or checking lights. Patients with obsessive-compulsive personality disorder are often meticulous and rigid with respect to moral, ethics and values and can be unwilling to change their mindset on these. They also exhibit features of perfectionism which can often render them unable to complete tasks or only able to complete them at the expense of social activities. They often struggle to delegate or trust others with their work. In this stem the patient has had prevailing problems with perfectionism and inability to delegate which have impacted on her ability to keep a job but also her free time, making this the most likely answer.

Patients with avoidant personality disorder tend to avoid social contact/relationships due to fear of being criticised, rejected or embarrassed. They view themselves as inferior to others and so are not keen to be involved unless they are certain of being liked. This does not fit with the description of the patient in the stem.

Patients with dependent personality disorder struggle to make everyday life decisions and require reassurance and support from others as opposed to being reluctant to delegate or unable to trust in others ability to perform a task.

Patients with narcissistic personality disorder have a heightened impression of self-importance and entitlement often believing they have unlimited abilities to succeed, become powerful or look beautiful. Whilst the patient in the stem believes others lack morals and values and is reluctant to delegate tasks for fear they will not be done correctly, there is nothing to suggest this is because she feels she is more important or entitled. Additionally, patients lack empathy and will happily take advantage of others to achieve their own need. There is nothing to suggest this in the stem.

Option 4 is incorrect, patients with schizoid personality disorder tend to lack close friendship/companions and are indifferent to praise making, however, do not hold strong moral values and lack the perfectionist traits seen in this stem.

Question:

A seventy-two-year-old woman with rheumatoid arthritis is recovering on the ward 6 days following a left hemi-colectomy for a tumour in the descending colon. She complains to the nurse looking after her that she has developed pain in her abdomen. The pain is diffuse and came on suddenly but has gradually been getting worse since onset. She ranks it an 8/10. She has not opened her bowels or passed flatus since the procedure.

On examination:

Blood pressure: 105/68 mmHg; Heart rate: 110/minute; Respiratory rate: 16/minute; Temperature: 38.2 ºC; Oxygen saturations: 98%.

Abdominal exam: abdomen is distended. Diffusely tender upon palpation and evidence of guarding throughout. No organomegaly. No pulsatile masses. Kidneys are non ballotable. No shifting dullness. Absent bowel sounds.

There is feculent matter in the abdominal wound drain.

Which of the following imaging modalities is the most appropriate investigation?

A.Abdominal CT

B.Abdominal X-ray

C.Abdominal ultrasound

D.Pelvic ultrasound

E.Colonoscopy

Answer:Abdominal CT

Explanation:

An anastomotic leak can be diagnosed with an abdominal CT

Important for meLess important

This patient is 5 days post an elective left hemi-colectomy, which will have involved the formation of an anastomosis. An anastomotic leak is a serious surgical complication that usually occurs 5-7 days following the procedure. This patient has rheumatoid arthritis and likely to be on steroids and other disease modifying anti-rheumatic drugs, which is a risk factor for the development of an anastomotic leak. The most common clinical signs of an anastomotic leak are abdominal pain and fever and whilst these are not unique to this condition, it is important to rule this condition out as if a leaking anastomosis is found, the patient must return to theatre urgently.

An abdominal computed tomograph (CT) (1) is the best modality for visualising this condition.

An abdominal X-ray (2) does not allow adequate visualisation of the soft tissues to enable diagnosis of an anastomotic leak. An ileus (a prolonged ileus is a feature of anastomotic leak) may be seen via this modality, but this alone cannot be the basis for diagnosis.

An abdominal CT is superior to an abdominal ultrasound (3).

A pelvic ultrasound (4) is unlikely to provide adequate visualisation of the affected structures, although a pelvic CT in combination with an abdominal CT may be helpful.

A colonoscopy would be unhelpful in this situation, and is contraindicated as this patient is peritonitic with a suspected leak

Question:

A 45-year-old woman with long-standing back pain presents to the emergency department following a 24-hour history of suddenly worsening back pain, bilateral sciatica, left foot drop and perianal paraesthesia. She has also become incontinent of urine.

Given the likely diagnosis, what imaging is required to confirm the cause?

A.Pelvic x-ray

B.No imaging is required and the patient should proceed directly for surgery

C.MRI spine

D.CT spine

E.Bladder scan

Answer:MRI spine

Explanation:

A patient with suspected cauda equina syndrome should have an urgent MRI spine

Important for meLess important

This patient has a clinical diagnosis of cauda equina syndrome and needs urgent investigation. The investigation of choice is an urgent MRI to investigate for a cause. The most common cause is herniation of an intravertebral disc compressing the cauda equina. Other causes include primary or metastatic spinal tumours, infections (such as an epidural abscess) or haematomas.

Imaging is always required in suspected cauda equina in order to establish the specific pathology causing the syndrome, the level of pathology and to inform the appropriate intervention.

Reference:

1. Lavy C, Wilson-MacDonald J. Cauda equina syndrome. BMJ 2009;338:b936

Question:

A 24-year-old man attends the emergency department (ED) following hitting their head against a garage door 2 hours ago. The patient has full recollection of the events and remembers vomiting when they hit their head. They have since felt ok.

On examination, the patient has bruising and a small laceration on their forehead. The remaining examination is normal. GCS is 15 and observations are normal. The patient reports having a small vomiting episode on arrival at the department.

The patient has no past medical history and takes no medications.

What is the next best management step?

A.Admit for neuro-observations only

B.CT head within 1 hour

C.CT head within 8 hours

D.Discharge with safety netting

E.Skull x-ray

Answer:CT head within 1 hour

Explanation:

Following a head injury, more than 1 episode of vomiting is an indication for a CT head within 1 hour

Important for meLess important

This scenario describes a 24-year-old man who has presented to the emergency department with a head injury and more than one episode of vomiting since the injury. This meets the criteria for an urgent CT head within 1 hour. Other criteria for a CT within 1 hour include evidence of basal skull fracture, depressed skull fractures and altered GCS.

Admit for neuro-observations only is incorrect as the patient has sustained a severe head injury which has caused multiple vomiting episodes. A CT head within 1 hour should be performed to rule out intracranial pathology.

CT head within 8 hours is not appropriate. A CT head within 8 hours is indicated following head injuries that meet certain criteria and where the patient has either altered consciousness or amnesia following the event. Criteria include a dangerous mechanism of injury, anticoagulation use, and more than 30 minutes of retrograde amnesia of events before the injury.

Discharge with safety netting is inappropriate as the patient is having repeated vomiting following a head injury. CT head imaging within 1 hour is indicated.

Skull x-ray is not correct. Skull x-rays can be used to assess skull fractures, but are less commonly performed given the increased availability of CT imaging. A skull x-ray would not be an optimal imaging modality for this patient. Given that this patient has had recurrent vomiting following the head injury, an investigation for intracranial pathology using CT is indicated.

Question:

Each one of the following is typically seen in Legionella pneumonia, except:

A.Dry cough

B.Lymphocytosis

C.Hyponatraemia

D.Flu-like symptoms

E.Deranged liver function tests

Answer:Lymphocytosis

Explanation:

Question:

A 62-year-old woman is admitted to the emergency department having taken a paracetamol overdose. She has a history of depression, epilepsy, and pulmonary tuberculosis. Her medication includes carbamazepine, St john's wort, rifampicin, and isoniazid.

On examination, appears cachectic and smells of alcohol. You think she will need treatment for her paracetamol overdose.

What is associated with a decreased risk of hepatotoxicity in this case?

A.Acute alcohol intake

B.Carbamazepine

C.Chronic alcohol use

D.Rifampicin

E.St John's wort

Answer:Acute alcohol intake

Explanation:

Paracetamol overdose: acute alcohol intake is not associated with an increased risk of developing hepatotoxicity and may actually be protective

Important for meLess important

Acute alcohol intake, as opposed to chronic alcohol excess, is not associated with an increased risk of developing hepatotoxicity and may be protective.

Liver enzyme-inducing drugs such as carbamazepine , St John's wort and rifampicin are associated with an increased risk of developing hepatotoxicity following a paracetamol overdose.

Chronic alcohol use has effects on the liver and is associated with an increased risk of developing hepatotoxicity following a paracetamol overdose.

Question:

A 62-year-old woman attends her GP complaining of weight gain, lethargy and hair loss. She denies any intercurrent illness. Thyroid function tests are performed and the results are as follows:

Thyroid stimulating hormone (TSH) 0.3 mu/l

Free T4 8 pmol/l

Which investigation is most likely to be diagnostic?

A.Thyroid ultrasound

B.Radio-iodine uptake scan

C.Anti-thyroid peroxidase (TPO) antibodies

D.Fine-needle aspiration of thyroid

E.MRI pituitary gland

Answer:MRI pituitary gland

Explanation:

This patient has hypothyroidism. The vast majority of cases are primary hypothyroidism with a high TSH and low T4. The common causes are:

Autoimmune (Hashimoto's disease, atrophic)

Iodine deficiency

Thyroiditis (post-viral, post-partum)

Iatrogenic (thyroidectomy, radioiodine, drugs)

Secondary hypothyroidism is very rare and results in a low TSH and low T4. In these cases, pituitary insufficiency is most likely and therefore an MRI of the gland should be performed.

Question:

A 27-year-old female is being seen in the GP clinic after discharge for a psychotic illness which was diagnosed as schizophrenia. Her symptoms gradually started and mainly involved auditory hallucinations and persecutory delusions; they are currently under control and she is worried about her prognosis. She was a high-functioning accountant prior to her illness.

Which aspect of her case represents a poor prognostic indicator?

A.Female gender

B.Gradual onset of symptoms

C.High-functioning accountant prior to illness

D.Predominant symptoms were auditory hallucinations and delusions

E.27-years-old at diagnosis

Answer:Gradual onset of symptoms

Explanation:

Gradual onset schizophrenia is a poor prognostic indicator

Important for meLess important

The only poor prognostic indicator in her case is the gradual onset of her symptoms. This is associated with a worse long-term outcome when compared to the rapid onset of symptoms and may reduce the likelihood that she remains in remission and can remain high functioning.

Being female is actually a good prognostic indicator compared to being male overall. However, the characteristics of the disease in each gender tend to vary. Males have worse initial symptoms and can tend to improve slowly over their lifespan whereas females tend to have milder initial symptoms.

Good pre-illness functioning is a good prognostic indicator for schizophrenia. This woman was a high-functioning accountant prior to her illness and this is a protective factor for her recovery.

Predominant positive symptoms such as auditory hallucinations and delusions are actually good prognostic indicators in this patient. Where the patient has predominant negative symptoms such as poverty of speech, apathy and anhedonia, the prognosis is poorer.

The younger the patient is diagnosed, the worse the prognosis is. In this case, the patient was diagnosed towards the later portion of her young adult life. If she was diagnosed in her teens, for example when she was 16, she would have a poorer prognosis.

Question:

A 45-year-old man attends the emergency department with acute-onset loin-to-groin pain. He states he has had similar pain before, but never as bad as this. A set of observations are carried out on his arrival:

Blood pressure: 110/85 mmHg

Heart rate: 119 bpm

Temperature: 38.6ºC

Oxygen saturation: 98% on air

Respiratory rate: 22/min

Given the most likely diagnosis, what is the definitive management?

A.Ensure adequate fluid resuscitation and then manage in the community

B.IV antibiotics and urgent renal decompression

C.Oral fluids, IV antibiotics and analgesia

D.Prescribe NSAIDs and manage in the community

E.Urgent nephrectomy

Answer:IV antibiotics and urgent renal decompression

Explanation:

Patients with obstructive urinary calculi and signs of infection require urgent renal decompression and IV antibiotics due to the risk of sepsis

Important for meLess important

This history is characteristic of ureteric colic from urinary calculi. His observations indicate there may be infection going on alongside this pain, as they paint a picture of sepsis.

Patients with urinary calculi alongside signs of infection require urgent IV antibiotics and renal decompression.

Fluid resuscitation may play a part in the management of ureteric colic but is not the sole management in instances where there are signs of infection where inpatient management (and sepsis treatment) is required.

Oral fluids, IV antibiotics, and analgesia may be useful in managing obstructive renal calculi and potential infection, but the definitive management is urgent renal decompression.

NSAIDs may play a part in the management of ureteric colic, but cannot be sole management in instances where there are signs of infection. Rectal diclofenac is often the NSAID of choice.

An urgent nephrectomy is an unnecessary procedure for this presentation.

Question:

A previously well 28-year-old man presents with shortness of breath and abdominal discomfort. He reports a dry cough for the previous ten days. He works full time as a management consultant. He is a non-smoker and drinks approximately 20 units of alcohol a week. He went on a stag-do to Prague with a bunch of friends two weeks ago. In the last few days, he has noticed a widespread skin rash which he describes as lots of pink rings around a pale centre.

Bloods on admission:

Na+ 128 mmol/l

K+ 3.7 mmol/l

Urea 8.2 mmol/l

Creatinine 150 µmol/l

Chest x-ray: Diffuse reticular infiltrates and small right-sided pleural effusion.

What is the most likely causative organism?

A.Staphylococcus aureus

B.Pneumocystis jiroveci

C.Mycoplasma pneumoniae

D.Streptococcus pneumoniae

E.Haemophilus influenzae

Answer:Mycoplasma pneumoniae

Explanation:

Stereotypical history of mycoplasma pneumonia: worsening flu-like symptoms and a dry cough. Erythema multiforme is noted on examination

Important for meLess important

This patient has a community-acquired pneumonia. Whilst Streptococcus pneumoniae and Haemophilus influenzae are the commonest causative organisms they tend to present with a shorter history. The longer duration of symptoms and unusual features of abdominal pain, dry cough and hyponatraemia should alert you to an atypical organism of which Mycoplasma pneumoniae is one of the commonest. The patient also describes erythema multiforme which is seen with Mycoplasma pneumonia.

Mycoplasma pneumoniae occurs in epidemics every three to four years and typically affects younger people. It tends to have an insidious onset with flu-like symptoms and atypical features. Hyponatraemia is often seen. Cold agglutinins can cause an autoimmune haemolytic anaemia. Diagnosis is confined with Mycoplasma serology. Treatment is with clarithromycin or a tetracycline or fluoroquinolone.

Staphylococcal pneumonia may complicate influenza infection and is seen most frequently in the elderly and in intravenous drug users or patients with underlying disease. It can result in a caveating pneumonia.

Pneumocystis jiroveci is seen in immunocompromised patients. It typically presents with exertional breathlessness and patients are seen to desaturate on walking. Whilst a HIV test should be considered in the diagnostic workup of this patient, it is not the most likely diagnosis in this case.

Question:

A 46-year-old man presents to the local hospital complaining of severe shortness of breath and pleuritic right-sided chest pain. He has no other symptoms of note. His medical history is significant for a broken tibia corrected surgically as a child. He is currently taking no medications.

His respiratory and cardiovascular examinations are normal, and there are no clinical signs of DVT. His respiratory rate is 24 breaths per minute; all other observations are within the normal range. A chest x-ray was performed, which revealed no abnormalities.

What is the most appropriate next investigation?

A.CT aortogram

B.CT pulmonary angiogram

C.CT thorax without contrast

D.D-dimer

E.V/Q scan

Answer:D-dimer

Explanation:

Suspected PE with a Wells PE score ≤4 - D-dimer is investigation of choice

Important for meLess important

The correct answer is D-dimer . In this scenario, the patient presents signs and symptoms consistent with a pulmonary embolism (PE). He has a chest x-ray which revealed no abnormalities, so we can rule out diagnoses such as pneumothorax or pneumonia. The next appropriate step for this patient would be calculating a two-level PE Wells score. The two-level PE wells score is a useful tool for guiding your next steps in investigating PE. This patient scores three points on a PE wells score. This is from the point in the scoring system 'An alternative diagnosis is less likely than PE'. The recommendation from NICE with a Wells score of <4 is to perform a D-dimer to ascertain whether further imaging or treatment is needed. This makes D-dimer the correct answer.

CT aortogram is incorrect. Given the likely diagnosis of PE, this would be inappropriate for the patient. A CT aortogram is the imaging modality for aortic dissection, not pulmonary embolism.

CT pulmonary angiogram is incorrect. This is because the Wells' score is only 3. NICE recommends proceeding straight to CT pulmonary angiogram if the Wells' score is 4 or more. If the D-dimer returns positive, it would be appropriate to later order a CT pulmonary angiogram. However, it is not currently indicated at this stage.

CT thorax without contrast is incorrect. A simple CT thorax without contrast would not be able to diagnose a PE. A chest x-ray is sufficient to rule out most other respiratory pathologies for this patient.

V/Q scan is incorrect. Whilst V/Q scans can be used for diagnosing a PE, the Wells' score is only 3. This necessitates a D-dimer to be ordered before further imaging. Furthermore, a V/Q scan is no longer the first line of investigation for pulmonary embolism, unless the patient is pregnant or has severe renal impairment, neither of which is true for this patient.

Question:

A 75-year-old lady, who has been a diabetic for over 25 years attend her regular follow-up sessions. During the consultation, the lady mentions to her GP that she has had difficulty with her vision over the past few months, especially in the left eye. She described it as a blurry vision and also reported seeing round figures around lights at night. The lady has never had problems with her vision in the past. She currently also takes medications to manage her blood pressure and cholesterol levels. Physical examination is otherwise unremarkable. Which of the following diagnosis is the most consistent with the lady's symptoms?

A.Primary open-angle glaucoma

B.Diabetic retinopathy

C.Uveitis

D.Cataract

E.Myopia

Answer:Cataract

Explanation:

This patient has a classic presentation of cataract. The long history of diabetes mellitus in an elderly presentation along with unilateral blurry vision and halos surrounding light sources are strongly suggestive of a diagnosis of cataract. There is no mention of any steroid use which would have also increased the risk for cataract.

Primary open-angle glaucoma is more associated with peripheral visual field loss than blurry vision and is anyway much less common than cataracts. Acute angle-closure glaucoma is more associated with haloes than primary open-angle glaucoma.

Uveitis would have also presented with pain and a red eye, and is not usually associated with diabetes.

Diabetic retinopathy is also likely in this diabetic patient but most patients are usually asymptomatic or sometimes present with haemorrhage. Myopia means short-sightedness which would not present with unilateral blurry vision and round figures around light sources.

Question:

A 65-year-old man presents in the early hours of the morning to the Emergency Department with a sudden onset of shortness of breath and reducing levels of consciousness. The medical history reveals that he has been stabbed in his chest with a knife following an altercation with a stranger outside a nightclub. On examination, his heart rate is 127 beats/min and blood pressure is 97/62 mmHg. The veins in his neck are markedly distended and auscultation of the heart proves to be difficult as the heart sounds are quiet. What is the most appropriate diagnostic test for this man's condition?

A.Chest X-ray

B.Thoracic CT scan

C.Echocardiogram

D.Electrocardiogram

E.Cardiac MRI

Answer:Echocardiogram

Explanation:

Beck’s triad of falling BP, rising JVP and muffled heart sound is characteristic of cardiac tamponade

Important for meLess important

This patient has falling blood pressure, rising JVP (distended neck veins) and muffled heart sounds which are known as Beck’s triad and is a characteristic sign of cardiac tamponade. In this scenario, the symptoms are caused by the direct trauma from the penetrating knife.

The diagnostic test of choice for cardiac tamponade is an echocardiogram. It can show an enlarged pericardium or collapsed ventricles.

Question:

A 42-year-old female presents to her general practitioner with a new-onset rash on her neck. She denies pruritus, but she has been recently troubled by a cold sore on her upper lip. She has a past medical history of sarcoidosis, well managed. Her rash is shown below:

© Image used on license from DermNet NZ

Which one of the following is the most likely diagnosis?

A.Atopic dermatitis

B.Bullous pemphigoid

C.Erythema multiforme

D.Erythema nodosum

E.Stevens-Johnson syndrome

Answer:Erythema multiforme

Explanation:

The correct answer is erythema multiforme. This patient is presenting with some non-itchy target lesions on her neck. The name of target lesions comes from the fact they have three concentric colour zones, a darker centre with a blister, a ring around this that is paler pink and raised due to oedema and a bright red outermost ring. This shape of lesion is characteristic of erythema multiforme, a hypersensitivity reaction that is most commonly triggered by infections. In this case, the patient complains of a cold sore on her upper lip (herpes labials) that most likely triggered the reaction.

Atopic dermatitis (or eczema) is a common presentation, especially in children. It presents with pruritic, erythematous, and scaly skin lesions often localized to the flexural surfaces of the body. But this patient presents with target lesions and normal surrounding skin on the neck rather than flexor surfaces making the diagnosis unlikely.

Bullous pemphigoid is an autoimmune condition causing sub-epidermal blistering of the skin. It is common in elderly patients and is usually itchy. Given that this patient has no blisters and itchiness the diagnosis is unlikely.

Erythema nodosum is an inflammation of subcutaneous fat that typically causes tender, erythematous, nodular lesions. It typically occurs on the shins. It can be caused by an infection or a systemic disease such as sarcoidosis. Even if she has one of the diseases which constitute a risk factor for the development of the conditions, the symptoms and presentation of this patient are not in keeping with this diagnosis.

Stevens-Johnson syndrome is a severe systemic reaction affecting the skin and mucosa, almost always caused by a drug reaction. The characteristic rash is typically maculopapular with target lesions. This patient has this type of lesion, however, this patient is systematically well, whilst in Stevens-Johnson syndrome, fever and arthralgia extremely are common. The condition causes epidermolysis (blistering and peeling) which causes severe fluid loss, causing the patient to feel extremely unwell. This is not seen in this patient.

Question:

A 31-year-old woman presents to her general practitioner with some questions regarding her pregnancy. She is 10 weeks pregnant and has been taking folic acid for three months before conception.

She is wondering whether she will need to take some iron tablets too, as most of her friends did during their pregnancies.

The doctor orders some blood tests to check whether this is needed.

Hb 112 g/L (115 - 160)

Platelets 326 \* 109/L (150 - 400)

WBC 4.2 \* 109/L (4.0 - 11.0)

What cut-off for haemoglobin should be used to determine when to commence treatment in this patient?

A.Haemoglobin less than 100 g/L

B.Haemoglobin less than 105 g/L

C.Haemoglobin less than 110 g/L

D.Haemoglobin less than 115 g/L

E.Haemoglobin less than 120 g/L

Answer:Haemoglobin less than 110 g/L

Explanation:

A cut-off of 110 g/Lshould be used in the first trimester to determine if iron supplementation should be taken

Important for meLess important

The correct option is haemoglobin lowers than 110 g/L. Pregnancy is a high-volume, low-pressure state, where the fluids of the mother increase steadily. This can lead to dilution of the blood elements, leading to lower levels of haemoglobin. Hence, 110g/L is used as a cut-off to determine whether women in the first trimester should be administered oral iron tablets or not, rather than the canonical 115 g/L.

Haemoglobin lowers than 100 g/L is the cut-off level to prescribe iron replacement therapy in women after delivery. This is lower than normal as pregnant women are subject to iron loss during and after delivery, and lactation increased the iron demands.

Haemoglobin lowers than 105 g/L is the cut-off level to prescribe iron replacement therapy in women during the second and third trimesters, when the volume of fluids increases even more. This woman is 10-weeks pregnant, making the answer incorrect.

Haemoglobin lowers than 115 g/L is the cut-off level to prescribe iron replacement therapy in non-pregnant women, making this option incorrect.

Haemoglobin lowers than 120 g/L is never used as a cut-off to prescribe iron replacement therapy as it is within the normal range.

Question:

You are asked to review a 63-year-old woman with new onset confusion. Her past medical history is significant for alcoholic cirrhosis of the liver. On examination, you note the patient is not orientated to time, place or person. She has asterixis and several telangiectasias over her trunk. Given the most probable diagnosis, which of the following is the most appropriate medication to prescribe?

A.Lactulose

B.Senna

C.Macrogol

D.Rifaximin

E.Rifampicin

Answer:Lactulose

Explanation:

Lactulose should be prescribed in all patients with suspected hepatic encephalopathy

Important for meLess important

Management of hepatic encephalopathy is designed to treat associated hyperammonemia. Of all the medications listed in this question, only lactulose is licensed for use in hepatic encephalopathy by the BNF. Lactulose works to inhibit production of ammonia in the intestine.

Rifaximin is a nonabsorbable derivative of rifampicin. Rifaximin is thought to affect the metabolic function of the intestinal flora. NICE guidance recommends the use of rifaximin to reduce the recurrence of episodes of overt hepatic encephalopathy.

Neomycin is another medication that is licensed for use in hepatic encephalopathy. It reduces ammonia levels by killing intestinal bacteria that produce ammonia.

Question:

A 30-year-old Asian woman presents with a history of headaches, claudication and having unequal blood pressure in both her arms. Given the most likely diagnosis, which of the following features may develop?

A.Oral ulcers

B.Renal artery stenosis

C.Photosensitivity

D.Thrombocytopenia

E.Leukopenia

Answer:Renal artery stenosis

Explanation:

Renal artery stenosis is associated with Takayasu's arteritis

Important for meLess important

Takayasu's arteritis is a vasculitic disorder generally affecting young Asian women. It affects the aorta and its branches and causes both systemic features and those specific to which vessels coming off of the aorta are affected.

It is associated with renal artery stenosis and so this is the correct answer.

All the other features listed above are features of systemic lupus erythematosus, a multi-system autoimmune condition in response to antinuclear antibodies occurring

Question:

Following the elderly ward round, a patient's daughter asks to speak to you, telling you their father has always said that he would not want invasive treatment and she believes that he has created an advance directive pertaining to this.

Which of these statements would be true for this patient's advance directive?

A.It can be used even when the patient has capacity

B.It cannot be overruled by a Lasting Power of Attorney

C.It refers to a specific treatment in a specific circumstance

D.It can be used to demand treatment

E.It is a general statement of wishes

Answer:It refers to a specific treatment in a specific circumstance

Explanation:

Advance directive - refers to a specific treatment in a specific circumstance

Important for meLess important

Advanced directives refer to specific treatments in specific circumstances rather than being a general statement of wishes. They are only valid when the individual loses capacity, and can be overruled by a Lasting Power of Attorney. They cannot be used to demand treatment, only to refuse it.

Question:

A 52-year-old woman presents with sepsis secondary to ascending cholangitis. Blood cultures grew Escherichia coli sensitive to gentamicin. She has received 2 days of treatment with gentamicin. The gentamicin levels have been in normal range. She remains febrile with rigors, a rising white cell count and tenderness in the right upper quadrant.

What is the most likely explanation?

A.Too low a dose

B.Inadequate duration of treatment

C.Inadequate tissue penetration of antibiotic

D.Abscess or deep seated infection

E.The antibiotic is not sufficiently bactericidal for this infection

Answer:Abscess or deep seated infection

Explanation:

Here we know that the causative agent is sensitive to the antibiotic being used and that she has adequate drug levels based on therapeutic drug monitoring. It would be important to consider whether there is a collection of pus such as a gallbladder empyema which requires drainage.

Question:

You are a doctor working in the renal clinic. Your next patient is a 32-year-old man who has autosomal dominant polycystic kidney disease. His renal function had been stable for some years, however, his most recent blood test results show that there has been a rapid deterioration and he now has stage 3 chronic kidney disease (CKD). He currently takes lisinopril and his blood pressure is well-controlled. He does not have diabetes.

What medication is most appropriate to prescribe to reduce the rate of CKD progression in this patient?

A.Amlodipine

B.Candesartan

C.Cyclophosphamide

D.Furosemide

E.Tolvaptan

Answer:Tolvaptan

Explanation:

Tolvaptan has been shown to reduce the rate of CKD progression in ADPKD (and is approved by NICE)

Important for meLess important

Tolvaptan is the correct answer. Tolvaptan is a vasopressin receptor 2 antagonist approved by NICE to reduce the rate of cyst development and renal insufficiency in patients with autosomal dominant polycystic kidney disease. It is recommended in patients with CKD stage 2 or 3 at the start of treatment, with evidence of rapidly progressing disease.

Amlodipine is incorrect. Amlodipine may be useful to reduce blood pressure, but this patient's blood pressure is well controlled. Therefore amlodipine is unlikely to reduce the rate of CKD progression. Tolvaptan is approved by NICE to reduce the rate of CKD progression in autosomal dominant polycystic kidney disease with CKD stage 2 or 3 at the start of treatment and evidence of rapidly progressing disease. This patient fits these criteria.

Candesartan is incorrect. Candesartan is an angiotensin II receptor blocker and may be useful to control blood pressure if ACE inhibitors are not tolerated, but there is no suggestion of this here. Tolvaptan is approved by NICE to reduce the rate of CKD progression in autosomal dominant polycystic kidney disease with CKD stage 2 or 3 at the start of treatment and evidence of rapidly progressing disease. This patient fits these criteria so this treatment should be started.

Cyclophosphamide is incorrect. Cyclophosphamide is used to treat some inflammatory causes of renal disease, such as glomerulonephritis. It is not used in polycystic kidney disease. Only tolvaptan is approved by NICE to reduce the rate of CKD progression in autosomal dominant polycystic kidney disease with CKD stage 2 or 3 at the start of treatment and evidence of rapidly progressing disease. This patient fits these criteria so this treatment should be started.

Furosemide is incorrect. Furosemide can be used in CKD to reduce oedema, but would not reduce the rate of CKD progression. Only tolvaptan is approved by NICE to reduce the rate of CKD progression in autosomal dominant polycystic kidney disease with CKD stage 2 or 3 at the start of treatment and evidence of rapidly progressing disease. This patient fits these criteria so this treatment should be started.

Question:

A 28-year-old woman gives birth to her first child. The baby is born via normal vaginal delivery and weighs 3.6 kg. The baby has a normal Newborn and Infant Physical Examination (NIPE) after birth and the mother recovers well following the delivery. The mother wishes to breastfeed her baby and is supported to do so by the midwives on the ward.

They are visited at home by the health visitor a week later. The health visitor asks how they have been getting on and the mother explains that she has been experiencing problems with breastfeeding and that her baby often struggles to latch on to her breast. She explains that this has made her very anxious that she is doing something wrong and has made her feel like she is failing as a mother. When her baby does manage to latch on to feed he occasionally gets reflux and vomits afterward. The health visitor weighs the baby who is now 3.2kg.

What is the next most appropriate step?

A.Advise her to start using formula instead of breast feeding

B.Consider notifying the local safeguarding team as you have concerns about the safety of the baby

C.Provide reassurance to the mother that all babies lose weight after birth and that is is normal to struggle with breastfeeding

D.Refer her to a midwife-led breastfeeding clinic

E.Refer her to the local perinatal mental health service for psychological support

Answer:Refer her to a midwife-led breastfeeding clinic

Explanation:

If a breastfed baby loses > 10% of birth weight in the first week of life then referral to a midwife-led breastfeeding clinic may be appropriate

Important for meLess important

Formula milk can be used in addition to breastfeeding to ensure that the baby is putting on enough weight whilst any breastfeeding issues are being addressed. However, it should not be suggested as an alternative to breastfeeding, if the mother wants to breastfeed she should be supported in doing so.

Failure to thrive, weight loss, or delayed growth of a baby or a child can be a sign of neglect and might raise safety concerns about the welfare of the baby. However, weight loss in the first few days of life is normal and the mother's response to her child's weight loss is appropriate. She is concerned about the welfare of her child. Therefore this situation does not raise any safeguarding concerns.

Weight loss of between 7-10% in the few days after birth is normal and most babies will return to their birth weight within the first 2 weeks of life. However, this baby has lost >10% of its birth weight therefore mother and baby need to be referred for midwife support in helping the baby gain weight.

This baby has lost >10% of its birthweight therefore this mother and her baby should be referred to a midwife-led breastfeeding clinic.

The mother is anxious about her baby's weight loss. This anxiety will hopefully improve as she gets the support she needs with breastfeeding and the baby starts to gain weight. However, if her anxieties and feelings of inadequacy persist and she is showing signs of post-partum depression then it would be sensible to refer her to her GP to access psychological support.

Question:

A 40-year-old woman attends her GP surgery with a 1-month history of a left groin lump. It is not severely painful but it causes occasional abdominal discomfort, particularly whilst jogging in the mornings. Her past medical history includes polycystic ovarian syndrome. She has otherwise been well with no recent illnesses.

Her observations are recorded to be within normal limits. On examination, there is a 3x3cm lump in her left groin located superiorly and medial to the pubic tubercle. It is visible whilst standing but disappears on lying flat.

What is the most likely diagnosis?

A.Femoral artery aneurysm

B.Femoral hernia

C.Inguinal hernia

D.Lipoma

E.Saphena varix

Answer:Inguinal hernia

Explanation:

Inguinal hernias and superior and medial to the pubic tubercle

Important for meLess important

This patient has an inguinal hernia. An inguinal hernia is a protrusion of abdominal contents through the abdominal wall. They commonly present as a lump in the groin that is more pronounced on straining with a cough impulse. They may or may not be reducible on examination. Other symptoms include pain and a dragging sensation. Occasionally, the abdominal viscera (usually small bowel or omenta) can become trapped in the hernial sac causing sudden onset pain and small bowel obstruction. Anatomically, they are located superiorly and medially to the pubic tubercle.

A femoral hernia also presents similarly as a painful groin lump. It may also be more prominent on standing and straining and disappear whilst sitting. Although femoral hernias are more common in women, inguinal hernias are the most common type of hernia overall. A femoral hernia is located laterally and inferiorly to the pubic tubercle.

A femoral artery aneurysm is secondary to weakness in the arterial wall. They commonly present as a pulsatile mass which is not mentioned in the question.

A lipoma is a benign growth of adipose tissue. They are often smooth and firm and are located in the subcutaneous tissue. Lipomas are generally asymptomatic. The clinical history and examination findings are not in keeping with a lipoma and should suggest an alternative diagnosis.

A saphena varix is a dilatation of the great saphenous vein at the junction with the femoral vein in the groin. They are sometimes associated with varicose veins. A saphena varix may be confused with a hernia as it may demonstrate a cough impulse. However, they often are slightly discoloured and have a bluish appearance.

Question:

A 67-year-old man is being treated with IV antibiotics in hospital after presenting with a cough, fever, and hypoxia. A healthcare worker on the ward finds that he is unconscious and help is called for. No peripheral pulses are felt and chest compressions are commenced. An ECG is performed which shows the following:

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What is the best next step in his management?

Give 1 shock immediately

58%

Give 3 shocks immediately

20%

Give adrenaline 1 mg

12%

Give amiodarone 150 mg

2%

Give amiodarone 300 mg

8%

Give 1 shock immediately is correct. This ECG shows irregular deflections of varying amplitude (height), no clear p-waves, QRS complexes, or T-waves, and the rate (which can be worked out by dividing 1500 by the number of small waves between each wave) is around 1500/4 which is around 375 bpm. The ECG describes ventricular fibrillation (VF) which is a shockable rhythm (alongside ventricular tachycardia, VT). Since this patient has VF and it was not witnessed (not seen in a patient already receiving cardiac monitoring, such as in a coronary care unit), they should be given 1 shock followed by 2 minutes of CPR. Both VF and VT are managed the same initially.

Give 3 shocks immediately is incorrect. Although VF is a shockable rhythm, this would be indicated if the patient's cardiac arrest was witnessed, meaning it was seen in a patient already receiving cardiac monitoring, such as in a coronary care unit. This is not the case here as this patient was found unresponsive without any cardiac monitoring in place.

Give adrenaline 1 mg is incorrect as this is given once chest compressions have restarted after the third shock. This patient has not yet been given any shocks, therefore, this step is not yet necessary.

Give amiodarone 150 mg is incorrect as this is given once chest compressions have restarted after the fifth shock. This patient has not yet been given any shocks.

Give amiodarone 300 mg is incorrect as this is given once chest compressions have restarted after the third shock. This patient has not yet been given any shocks.

Question:

An 87-year-old man presents to their GP with shortness of breath. He describes a sudden shortness of breath that began 4 hours previously. He is also experiencing left-sided chest pain that is worse on inspiration. The GP sends him to the hospital for a chest X-ray, querying a pulmonary embolism.

What is the most likely finding on a chest X-ray?

Kerley B lines

1%

Normal chest X-ray

4%

Pleural effusion

76%

Visible visceral pleural edge

3%

Wedge shaped opacification

15%

Pulmonary embolism - normal CXR

Important for meLess important

Normal chest x-ray is the right answer. The chest x-ray is most likely to be normal in pulmonary embolism. A chest x-ray is indicated in all patients presenting with a possible PE to rule out other pathology before a CT pulmonary angiogram. While wedge-shaped opacification can be seen, it is not a typical finding.

Visible visceral pleural edge is incorrect. This finding would be consistent with a pneumothorax, not a pulmonary embolism. Given the treating team is considering a pulmonary embolism, this is unlikely to be seen.

Kerley B lines is incorrect. This finding is consistent with pulmonary oedema, not a pulmonary embolism.

Pleural effusion is incorrect. While a pulmonary embolism can cause an exudative pleural effusion, it is not the most common finding.

Wedge shaped opacification is incorrect. While this can be seen in pulmonary embolisms, it is an uncommon finding.

Question:

You review a 54-year-old man complaining of a warm, red rash on his right lower leg which he first noticed 2 days ago. He complains of discomfort but reports he is otherwise well in himself. Previously he experienced some diarrhoea and nausea after taking amoxicillin for a chest infection. He has no co-morbidities. There is a tender area of diffuse erythema and soft-tissue swelling to his lateral shin.

What is the most appropriate antibiotic option?

A.Clarithromycin

B.Co-amoxiclav

C.Erythromycin

D.Flucloxacillin

E.Phenoxymethylpenicillin

Answer:Flucloxacillin

Explanation:

Flucloxacillin is the first line therapy for cellulitis

Important for meLess important

Flucloxacillin is the correct answer. This man is presenting with mild lower limb cellulitis, for which flucloxacillin is recommended by NICE as the first-line antibiotic choice (provides good gram-positive bacterial coverage). Diarrhoea and nausea are common side effects of taking amoxicillin and would not be classed as an allergic reaction to the medication. Therefore this fact should not deter you from treating the man with a penicillin antibiotic.

Clarithromycin is not the correct answer because this is only recommended as first-line if the patient were to report having a penicillin allergy and it is stated that the man has no known allergies.

Erythromycin is not the correct answer because this is only recommended as first-line if the patient had a penicillin allergy and was pregnant; neither of which applies to this man.

Co-amoxiclav is not the correct answer because this is not recommended by NICE as the first line treatment for an uncomplicated, class 1, cellulitis.

Phenoxymethylpenicillin is not the correct answer because this is not used to treat cellulitis. It is commonly used to treat throat infections.

Question:

Bethany is a 40-year-old woman who presents with a red eye and significant nausea. She has noticed that her left eye was red when she woke up from sleep. She also has a concurrent headache with this and her vision is blurry. When asked, she feels that she can see rings around lights as well. She remains otherwise well.

Examination reveals significant conjunctival injection around the left eye. Bethany is very photophobic when testing her left eye. The pupil appears to be dilated at 5mm and does not respond to light. Her right eye has a pupil size of 3mm and is reactive to light.

What is the likely cause for her symptoms?

A.Acute close angle glaucoma

B.Anterior uveitis

C.Cluster headache

D.Primary open angle glaucoma

E.Posterior uveitis

Answer:Acute close angle glaucoma

Explanation:

Acute closed-angle glaucoma presents with a fixed dilated pupil with conjunctival injection

Important for meLess important

Acute closed-angle glaucoma is an uncommon condition but is treated seriously due to the risk of vision loss should it be left untreated. Risk factors for these conditions include hypermetropia (long-sightedness), a shallow anterior chamber and female gender. It typically presents as an acutely red eye associated with sudden visual loss. The eye will be painful to movement and the appearance of halos around light is also seen. The eye will show a paralysed mid-dilated pupil and a hazy cornea is possible. Pressure within the eye would be high if measured. The mainstay of treatment involves reducing the intraocular pressure by topical drops.

Anterior uveitis is a diagnostic possibility and can also present as an acutely red eye with visual loss. It is not commonly associated with visual halos. The examination will show either a normal-sized or small pupil rather than a dilated pupil. Slit-lamp will also show possible precipitates or a hypopyon. Patients with uveitis may also show signs of an underlying inflammatory/autoimmune condition.

Primary open-angle glaucoma does not typically present acutely and has a more insidious onset. Most cases are asymptomatic and if symptoms are noted, it will present as loss of peripheral vision. Pupillary changes are not seen in this case.

Cluster headaches can present with a significant headache ( typically described as retro-orbital) along with conjunctival injection and blurry vision. It should not be associated with any pupillary defects.

Posterior uveitis is usually painless and common symptoms include blurry vision and floaters. It does not cause a red eye.

Question:

A 67-year-old woman presents to their GP with post-menopausal bleeding. After taking a thorough history, you are concerned about endometrial cancer and decide to perform a vaginal examination. You consent the patient and explain that a chaperone is required, for your safety and hers, as it is an intimate examination. She initially declines and, after exploring her reasons for not wanting a chaperone in the room, she still declines a chaperone. You do not feel comfortable performing this examination without a chaperone present.

What is the most appropriate action in this situation?

A.Do not examine without the presence of a chaperone and ask her to make another appointment with another professional

B.Do not perform the examination and arrange for another member of the GP practise to perform the examination that day

C.Examine with a chaperone

D.Examine without a chaperone

E.Refuse to perform the examination and berate her for not letting you use the chaperone

Answer:Do not perform the examination and arrange for another member of the GP practise to perform the examination that day

Explanation:

If a patient declines a chaperone for an intimate examination and you do not feel comfortable to perform the examination then you must make other arrangements for the patient to be examined

Important for meLess important

Do not perform the examination and arrange for another member of the GP practice to perform the examination that day is the correct answer. This is because you must balance the patient’s needs, and your professional responsibilities, with your rights as a healthcare professional. If you do not feel comfortable performing an examination, you have the right to refuse to perform that examination. You should arrange for that examination to be completed as quickly and easily for the patient as possible.

The key thing in this scenario, you do not feel comfortable performing the examination. Therefore, you do not have to complete it. However, as you are considering endometrial cancer, the examination does need to be performed quickly. Asking another member of the GP practice to conduct the examination that day allows the examination to be completed without negatively impacting the patient's health outcomes.

Do not perform the examination without a chaperone, and ask the patient to book another appointment with a different doctor is incorrect. This is because, despite ensuring that the patient is examined, you are putting the burden of arranging that examination onto the patient rather than arranging it yourself.

Perform the examination without a chaperone is incorrect. This is because while it is an option to examine without a chaperone, it is not optimal practice. Furthermore, as discussed above, you feel uncomfortable performing the examination scenario. You should offer chaperones wherever possible when performing intimate examinations. However, the patients have the right to refuse the presence of a chaperone if they do not want them. If a chaperone is declined and you are still comfortable examining the patient, it is essential to carefully document the refusal of a chaperone and explain that you performed the procedure, as well as all the necessary details.

Performing the examination with a chaperone is incorrect. This is because the patient has refused a chaperone, and patients have a right to refuse treatment, including chaperones. It is good practice to explore why the patient does not want to chaperone; however, do not attempt to coerce or guilt the patient into having a chaperone present.

Refused to perform the examination and berate the patient is incorrect. While you are within your right to refuse to perform the examination, you should never criticise the patient because it is their right to refuse to have a chaperone.

Question:

A 74-year-old male presents to the surgical assessment unit. He has come in with lower abdominal pain and has been unable to pass urine for the past 12 hours. On examination he has a palpable bladder and is tender in the suprapubic region. On PR examination his prostate is smooth and not enlarged. He has a background of high blood pressure, depression, neuropathic pain and diabetes.

What is the most likely cause for this presentation?

A.Gabapentin

B.Amlodipine

C.Metformin

D.Amitriptyline

E.BPH

Answer:Amitriptyline

Explanation:

Amitriptyline can cause urinary retention

Important for meLess important

This gentleman is in urinary retention. Amitriptyline can cause urinary retention through its anticholinergic activity.

The other medications do not cause urinary retention.

The patient has a small prostate on PR examination so is unlikely to be suffering from BPH

Question:

A 45-year-old woman presents to the emergency department. She is in intense pain in the right upper quadrant of her abdomen, is pyrexic, and is both tachycardic and tachypnoeic.

Which of the following is this woman most likely suffering from?

A.Acute cholangitis

B.Acute cholecystitis

C.Acute pancreatitis

D.Biliary colic

E.Gallstone ileus

Answer:Acute cholecystitis

Explanation:

One of the best ways for differentiating between acute cholecystitis and biliary colic is that people with cholecystitis typically are systemically unwell

Important for meLess important

This is a typical history of acute cholecystitis. Often students find it difficult to differentiate biliary colic, cholecystitis and cholangitis. This is acute cholecystitis because this woman is systemically unwell and in pain, whereas in biliary colic she won't be systemically unwell. In acute cholangitis, the woman will most likely be jaundiced, which there is no mention of. Murphy's positive sign is also a sign typical in acute cholecystitis, and is pain on inspiration during palpation of the right upper quadrant. IV antibiotics and laparoscopic cholecystectomy are the management.

Question:

A 24-year-old medical student is diagnosed with schistosomiasis after coming back from their elective in Malawi, where she had gone swimming in a lake.

What is the best option for this patient's treatment?

A.Albendazole

B.Artemisinin combination therapy

C.Diethylcarbamazine citrate (DEC)

D.Ivermectin

E.Praziquantel

Answer:Praziquantel

Explanation:

Schistosomiasis is treated with praziquantel

Important for meLess important

The correct answer is praziquantel . This is an antihelminthic drug used to treat schistosomiasis, an infection caused by parasitic freshwater worms most commonly found in Africa. The worms burrow through the skin and enter the bloodstream, circulating around the body. They can enter the liver and are a major cause of cirrhosis in the developing world. The most appropriate treatment for them is praziquantel as mentioned previously. This often needs to be repeated after a few weeks as it is more effective when the worms have grown. Steroids may be used for symptomatic relief.

Artemisinin combination therapy is used in the treatment of falciparum malaria, which this patient does not have.

Diethylcarbamazine citrate (DEC) is used in the treatment of filariasis, another parasitic worm infection. The vector for filariasis is mosquitoes. This disease is often quiescent but can cause problems with lymphatic drainage, leading to lymphoedema and elephantiasis.

Ivermectin is a treatment for two parasitic worm infections - strongyloidiasis and onchocerciasis. It is also widely used in veterinary practice. It is not a treatment for schistosomiasis.

Question:

A 24-year-old man presents to their GP with a testicular lump. After taking the history, you decide that a testicular examination is necessary to check for testicular cancer. The patient consents to the examination, and you explain that a chaperone is needed for your safety and his because it is an intimate examination. He declines, and after exploring the reasons for not wanting a chaperone in the room, he still declines a chaperone. You feel comfortable performing the examination.

What is the most appropriate action in this situation?

A.Ask another professional at the GP surgery to do the examination today

B.Ask the patient to rebook an appointment with another GP to be examined

C.Perform the examination and clearly document your examination and refusal of a chaperone

D.Refer the patient to urology without examination

E.Send the patient to the emergency department for examination

Answer:Perform the examination and clearly document your examination and refusal of a chaperone

Explanation:

If a patient declines the offer of a chaperone then you should fully document this and their reasons for refusal but this does not mean you should not examine them

Important for meLess important

Perform the examination and clearly document your discussion regarding a chaperone is the right answer. Although it is best practice to have a chaperone, if the patient refuses and you feel comfortable doing the examination, you can do so. In this scenario, you can examine the patient as you are comfortable, you must ensure that you fully document all aspects of the procedure and document clearly that the patient refused a chaperone.

Refer the patient to urology without examination is incorrect. It would be inappropriate to refer to urology without performing an examination, especially if there is no obstacle to examining.

Ask another professional at the GP surgery to do the examination today is incorrect. This would be appropriate if you didn't feel comfortable as it would minimise delay for the patient. In this scenario, it would be inappropriate as you feel comfortable doing the procedure, and it would cause a delay in the other doctor's clinic.

Ask the patient to rebook an appointment with another GP is incorrect. If you are uncomfortable performing the procedure, you should be the one to organise the examination rather than leaving it to the patient to arrange. In this scenario, however, there is also no obstacle to you performing the examination as you are not uncomfortable.

Send the patient to the emergency department for examination. is incorrect. This is inappropriate in this scenario as you are comfortable performing the procedure, and there is no indication for sending the patient to the emergency department.

Question:

Each one of the following is a recognised side-effect of erythropoietin, except:

A.Hypertension

B.Flu-like symptoms

C.Encephalopathy

D.Pure red cell aplasia

E.Thrombocytopenia

Answer:Thrombocytopenia

Explanation:

Question:

A normally fit and well 46-year-old woman is admitted to hospital with T11/12 discitis complicated by a T4 to L1 epidural abscess and a left psoas abscess. Surgery to drain them is carried out and intra-operative samples are cultured in the laboratory and grow Staphylococcus aureus. Additionally blood cultures on admission grow Staphylococcus aureus after 72 hours.

Which of the following investigations is most appropriate in the first instance to look for a source of the infection given the pathogenic organism found?

A.CT head with contrast

B.CT thorax, abdomen and pelvis with contrast

C.Echocardiogram

D.HIV serology

E.Midstream urine culture

Answer:Echocardiogram

Explanation:

In discitis due to Staphylococcus an echo is needed to look for endocarditis

Important for meLess important

The bacteria isolated in this case, Staphylococcus aureus is an aggressive pathogen and can disseminate around the body widely when it enters the bloodstream. A primary psoas abscess in a fit and well patient is highly unlikely and a haematogenous source of spread should be looked for in all deep abscesses caused by Staphylococcus aureus. The most common cause is septic emboli from endocarditis and systemic bacteraemia with Staphylococcus aureus has a high rate of development of endocarditis due to the bacterial ability to attach to structures and form biofilms. Therefore an echocardiogram must be performed to look for evidence of valvular injury or vegetations in all cases of Staphylococcus aureus-positive cultures.

CT imaging is helpful in looking for other abscesses and other foci of infection but is unlikely to demonstrate a primary source of haematogenous spread. CT imaging would be much more helpful in looking for sources of Gram-negative organisms as these usually originate from the gastrointestinal or urinary tracts within the abdomen.

Although Staphylococcus aureus sepsis is associated with immunosuppression and HIV testing is definitely indicated, this would not identify a primary source of the bacteraemia.

Staphylococcus aureus rarely causes urinary tract infections and a midstream urine is a poor test for a primary source in this case. It would be more helpful in Gram-negative bacteraemia.

Duke’s Criteria for Endocarditis

Given the positive blood culture for a ‘typical’ organism, this patient would score one major criterion at present. Any endocardial involvement demonstrated on an echocardiogram (valvular lesions) would be a second and give a firm diagnosis of bacterial endocarditis. The treatment of complicated discitis usually lasts for 6-12 weeks with only the first two needed as intravenous treatment. If endocarditis is diagnosed this will also change the length of time intravenous therapy is offered and may also alter the total length of time treatment is required although practice does vary from unit to unit.

Question:

A 15-year-old boy is reviewed on the ward, 2 days after he was treated in the emergency department for a suicide attempt, where he drank antifreeze. His latest blood tests showed elevated urea, creatinine and potassium. He has no symptoms of fluid overload and has had normal vital signs. His nurse notes that he has been drinking less and passing less urine than usual.

A urine dipstick is unremarkable, and further urine testing shows the following:

Urine sodium 45 mmol/L (20-40)

Urine osmolality 250 mOsm/kg (500-800)

What is the most likely diagnosis?

A.Acute interstitial nephritis

B.Acute tubular necrosis

C.Glomerulonephritis

D.Pre-renal azotaemia

E.Renal papillary necrosis

Answer:Acute tubular necrosis

Explanation:

Acute tubular necrosis - urine osmolality < 350 mOsm/kg

Important for meLess important

This boy has an acute kidney injury showed by his raised urea, creatinine and potassium. Anti-freeze (ethylene glycol) is a nephrotoxic agent which can lead to acute tubular necrosis. This occurs due to glycolic acid being converted into oxalic acid, which in turn deposits as calcium oxalate crystals in the kidney, leading to his oliguric acute kidney injury. His urine test, showing high sodium and low osmolality, is also characteristic of acute tubular necrosis.

Acute interstitial nephritis is an inflammation of the renal interstitium. It is commonly an inflammatory reaction in response to a drug, such as penicillin, rifampicin, NSAIDs, allopurinol or furosemide. There would be more systemic symptoms expected than is described here, such as a rash, fever or joint pain.

Glomerulonephritis tends to present with either a nephrotic or nephritic syndrome, neither of which are present in this scenario given the unremarkable urine dipstick.

Pre-renal azotaemia is caused by renal hypoperfusion, which can be due to shock, haemorrhage or volume depletion. There is no indication of a reason for hypoperfusion in this scenario. It would also present differently on a urine test, showing low urine sodium, and normal osmolality.

Renal papillary necrosis is due to an ischaemic insult to the renal papillae. Similar to acute interstitial nephritis, there would be more systemic symptoms expected.

Question:

A 26-year-old woman has 3 weeks of shortness of breath and fatigue on exertion and a new skin rash over her face and nose. During this time, she has felt generally unwell and has had a dry cough and malaise. She has never smoked.

She has cervical and submandibular lymphadenopathy and dark indurated plaques are noted around the eyes, nose, and cheeks.

Blood tests show:

Hb 110 g/L (115 - 160)

Platelets 260 \* 109/L (150 - 400)

WBC 5.3 \* 109/L (4.0 - 11.0)

Na+ 141 mmol/L (135 - 145)

K+ 4.5 mmol/L (3.5 - 5.0)

Calcium 2.8 mmol/L (2.1 - 2.6)

Urea 5.6 mmol/L (2.0 - 7.0)

Creatinine 180 µmol/L (55 - 120)

Creatine kinase 105 IU/L (25-200)

ESR 45 mm/hr (< 18)

What is the most likely diagnosis?

Dermatomyositis

8%

Lung cancer

1%

Sarcoidosis

59%

Systemic lupus erythematosus

28%

Systemic sclerosis

4%

Facial rash plus lymphadenopathy think sarcoidosis

Important for meLess important

Sarcoidosis is correct in this case. This patient is young and female presenting with shortness of breath, fatigue on exertion, a facial rash and lymphadenopathy which should raise suspicion of sarcoidosis. The elevated serum calcium supports this diagnosis, as sarcoidosis can lead to hypercalcaemia due to the increased production of 1,25-dihydroxy vitamin D3 by activated macrophages and granulomas. The rash described in this patient is known as lupus pernio, which describes dark indurated plaques that can involve the face and extremities.

Dermatomyositis is incorrect in this case. Although this can present with a darkened rash in the periorbital region (a heliotrope rash), this is characterised by proximal muscle weakness and tenderness due to inflammation of the muscle. This is also associated with malignancy, including ovarian, breast, and lung cancer. Besides feeling generally unwell, no other features suggestive of cancer such as haemoptysis are present. Creatine kinase is also normal in this patient, which would be elevated if she had dermatomyositis due to inflammation of the muscles.

Lung cancer is incorrect in this case. Although this may present with lymphadenopathy, cough, and shortness of breath, this patient does not smoke and has no associated features such as haemoptysis or unexplained weight loss, making this diagnosis less likely.

Systemic lupus erythematosus (SLE) is incorrect in this case. Although this can present with lymphadenopathy and a facial rash, the rash on the face is generally described as malar and butterfly-shaped over the cheeks, sparing the nasolabial folds. This patient's rash is also noted around her eyes, which is not present in SLE. Patients often have associated features such as mouth ulcers and joint pain, which are not seen here.

Systemic sclerosis is incorrect in this case. This presents with hardened and sclerotic skin either over the face and distal limbs in limited cutaneous systemic sclerosis, or the trunk and proximal limbs in diffuse cutaneous systemic sclerosis. This patient has no involvement of the distal limbs or trunk, and the skin changes in systemic sclerosis do not include darkening. Systemic sclerosis is also not associated with hypercalcaemia and lymphadenopathy and this patient has no other associated features such as features seen in CREST syndrome (calcinosis, Raynaud's phenomenon, oesophageal dysmotility, sclerodactyly, telangiectasia).

Question:

A 35-year-old woman who has a regular 28-day menstrual cycle complains of mood changes in the week before her period. She describes increasing anxiety and irritability. Her symptoms are severe and have an impact on her life, making it difficult to maintain her work or social life. She has a past medical history of migraine with aura.

Which of the following interventions is most appropriate to help reduce her pre-menstrual symptoms?

A.Combined oral contraceptive pill

B.Non-steroidal anti-inflammatory drug

C.Progesterone only pill

D.Contraceptive implant

E.Selective serotonin re-uptake inhibitor (SSRI)

Answer:Selective serotonin re-uptake inhibitor (SSRI)

Explanation:

SSRIs, either continuously or during the luteal phase, may help premenstrual syndrome

Important for meLess important

The patient in this question is suffering from pre-menstrual syndrome.

NICE guidance suggests that women with severe premenstrual symptoms should be managed using SSRIs. They can be taken continuously or just during the luteal phase (for example days 15–28 of the menstrual cycle, depending on its length). The prescription should be for an initial 3 month period and patients should be monitored closely during initiation.

The combined oral contraceptive pill is the wrong option because this patient has a history of migraine with aura which contra-indicates the prescription of the combined contraceptive pill.

Giving this patient a non-steroidal anti-inflammatory drug would be inappropriate as she does not have symptoms of dysmenorrhoea and it would not have any effect on her mood or pre-menstrual symptoms.

Progesterone only pills or the contraceptive implant are not indicated in the management of pre-menstrual syndrome.

Lifestyle advice for all women with PMS should include regular, frequent meals rich in complex carbohydrates, regular exercise and sleep, smoking cessation, and stress reduction.

Question:

A 59-year-old man with a past medical history of chronic kidney disease stage 4 and diverticular disease is admitted with abdominal pain. On examination, he is tender in the left iliac fossa with localised guarding. His heart rate is 112 bpm, his blood pressure is 126/82 mmHg and his temperature is 38.4ºC. A blood test is performed and shows the following:

WBC 19.2 \* 109/L (4.0 - 11.0)

Urea 8.1 mmol/L (2.0 - 7.0)

Creatinine 131 µmol/L (55 - 120)

CRP 147 mg/L (< 5)

Given the likely diagnosis, which of the following is necessary before diagnostic imaging?

No treatment

21%

1L intravenous 0.9% sodium chloride

60%

1L oral water

4%

250mL intravenous Hartmann’s solution

11%

500mL intravenous 5% glucose

3%

Prevention of contrast-induced nephropathy: volume expansion with 0.9% saline

Important for meLess important

This man is likely suffering from acute diverticulitis but requires a CT abdomen and pelvis with contrast to make a diagnosis. Iodine-based CT and x-ray contrast medium can cause contrast-induced nephropathy and potentially cause an acute kidney injury (AKI) on the background of this man’s chronic kidney disease (CKD). To limit the risk of this, if contrast must be given, volume expansion before and after the scan should be done. The minimum volume should be 1mL/kg per hour over 12 hours. For an average 70kg man, this is 840mL. In practice, the usual volume given is 1L before and 1L after of 0.9% sodium chloride.

Not offering treatment risks causing an AKI and in someone with stage 4 CKD, this may precipitate severe acute renal failure requiring emergency dialysis.

Oral water is not adequate for volume expansion and fluids must be given intravenously.

Although Hartmann’s solution contains enough sodium to be used in place of 0.9% sodium chloride, 250mL is too small a volume and will have no effect.

5% glucose is inappropriate for volume expansion as very little remains in the intravascular space. Additionally, 500mL is too small a volume.

Question:

The paediatric doctor has been asked to see a woman on the postnatal ward who has a 12-hour old baby. The baby was born at 36 weeks with no complications. The midwife reports that the mother is exclusively breastfeeding but also attempting to hand express, and the latest capillary blood glucose is 0.9mmol/L. The baby is asymptomatic.

What should be done next?

Admit to neonatal unit and give glucose gel in addition to formula feeds

8%

Encourage breastfeeding

37%

Give glucose gel in addition to breastfeeding

15%

Give formula feed and repeat capillary blood glucose in 2 hours

7%

Admit to neonatal unit and start 10% dextrose infusion

33%

Neonatal hypoglycaemia: if symptomatic or very low blood glucose admit to neonatal unit and give IV 10% dextrose

Important for meLess important

The correct answer is to admit to the neonatal unit and start a 10% dextrose infusion. Capillary blood glucose of <1mmol/L is a very low glucose level and should be reviewed by the paediatric team and started on an intravenous dextrose infusion, regardless of whether they are symptomatic or not. The risk factor for hypoglycaemia here is prematurity.

Therefore all the other options are incorrect - this may be used to varying degrees in less severe, or asymptomatic, neonatal hypoglycaemia.

Question:

A 61-year-old man is seen in the endocrine clinic following investigations for weight gain and lethargy. He has no relevant past medical history and does not take any regular medications.

The results of his investigations are displayed below:

Na+ 149 mmol/L (135 - 145)

K+ 2.9 mmol/L (3.5 - 5.0)

Bicarbonate 33 mmol/L (22 - 29)

Urea 6.4 mmol/L (2.0 - 7.0)

Creatinine 101 µmol/L (55 - 120)

24 hour urinary cortisol 272mcg/24hrs (3.5 - 45)

8 AM cortisol after administration of low dose dexamethasone 212nmol/L (<50)

8 AM cortisol after administration of high dose dexamethasone 42nmol/L (>50% reduction vs low dose)

Where is the most likely source of this man's abnormality?

A.Adrenals

B.Hypothalamus

C.Kidneys

D.Lungs

E.Pituitary

Answer:Pituitary

Explanation:

In Cushing's disease, cortisol is not suppressed by low-dose dexamethasone but is suppressed by high-dose dexamethasone

Important for meLess important

This man has presented with Cushing's syndrome, as evidenced by his raised urinary cortisol level and metabolic abnormalities. To determine the cause of Cushing's syndrome, a dexamethasone suppression test must be performed. His lack of response to low-dose dexamethasone confirms Cushing's syndrome. His positive response to high-dose dexamethasone confirms that the abnormality is related to the pituitary (Cushing's disease). This is because excess adrenocorticotropic hormone (ACTH) production from the pituitaries can be inhibited by high doses of dexamethasone, however autonomous cortisol production from the adrenals will not be affected.

As mentioned, the fact that this patient is responsive to high-dose dexamethasone is evidence that the adrenal glands are not responsible for this man's Cushing's syndrome. This is because dexamethasone inhibits ACTH hormone but has no direct effect on the adrenals. This is therefore an incorrect answer.

Disorders of the hypothalamus are generally associated with hypopituitarism, rather than hyperpituitarism. Furthermore, the positive response to the high dose dexamethasone is specific for Cushing's disease.

The electrolyte abnormalities seen here are due to Cushing's syndrome rather than any renal impairment. Note that the kidneys have no role in cortisol production.

Ectopic ACTH production from the lung is a possible cause of Cushing's syndrome however as with adrenal pathologies, this is not responsive to high dose dexamethasone.

Question:

A 19-year-old woman is admitted as she has developed severe depression that has resulted in an overdose. She also complains of hearing voices speaking to her directly, saying that she is worthless and incapable. When speaking with her relatives, they noticed a gradual decline in her neurological and psychiatric health. It started with increased impulsivity in the form of shopping sprees uncharacteristic of her. She also would get some dystonic movements in her neck that was treated with physical therapy and muscle relaxants. Her family also noticed that she was more likely to bruise in the preceding 3 months. There is a family history on the mother's side of psychiatric problems similar to this. They would occur at a similar age.

You take some bloods and notice that her liver enzymes are elevated.

What is the most likely diagnosis?

A.Schizophrenia

B.Wilson's disease

C.Haemochromatosis

D.Bipolar disorder

E.Melancholic depression

Answer:Wilson's disease

Explanation:

Psychosis is a complication of Wilson's disease

Important for meLess important

Neuropsychiatric symptoms is one of the most common manifestations of Wilson's disease. They may experience depression, anxiety, and psychosis. These patients tend to present when they are teenagers or young adults and there is a family history of similar problems.

It can be easy to misdiagnose this as a psychiatric condition such as depression or schizophrenia. However, it is always important to rule out organic causes. A strong indication that her symptoms were organic in nature was the presence of her physical problems such as dystonia, which would not occur in other psychiatric conditions.

Question:

A mother brings her 11-month-old son to the emergency department because she is concerned about a rash he has developed. On further questioning, the mother describes that the rash started 2 days ago, initially behind the ears but has since spread.

Prior to developing the rash, the infant was generally unwell with a cough and a fever. He is currently up to date with vaccines but the mother knows that he is supposed to have some more soon though she has not booked an appointment for these yet.

On examination you note that he is irritable, has white spots in his mouth and his eyes appear inflamed.

Given the most likely diagnosis, which of the following would he be most at risk of developing?

A.Aplastic crisis

B.Arthritis of the small joints

C.Deafness

D.Orchitis

E.Otitis media

Answer:Otitis media

Explanation:

The most common complication of measles is otitis media

Important for meLess important

This is a classical presentation of measles. There is the initial prodrome of cough, coryza and koplik spots (white spots on the buccal mucosa) presents before the emerging rash, which starts behind the ears and spreads down the body between day 3 and 5. Otitis media is the most common complication but pneumonia is the most common cause of death – therefore the child may need antibiotic treatment in addition to the supportive treatment (hydration and food).

Arthritis of the small joints is a complication of rubella infection. Mumps is responsible for orchitis and deafness whereas erythrovirus can result in an aplastic crisis.

Question:

A 54-year-old woman presents to her GP with an increasing frequency of migraine attacks. She is having episodes every 2 weeks which last around 24 hours and are only partially improved with zolmitriptan. Due to this, she is finding that she needs to take time off her work as a teacher and is anxious about losing her job. Her only other past medical history is asthma. Her current medications are zolmitriptan and salbutamol. She takes over-the-counter evening primrose oil to ease her menopause symptoms which started 14 months ago.

What is the most appropriate medication for the GP to prescribe to reduce her migraine attack frequency?

A.Amitriptyline

B.Diclofenac

C.Propranolol

D.Sumatriptan

E.Topiramate

Answer:Topiramate

Explanation:

Migraine

acute: triptan + NSAID or triptan + paracetamol

prophylaxis: topiramate or propranolol

Important for meLess important

The correct answer is topiramate. This patient needs prophylactic migraine management. The options for the GP are topiramate or propranolol. Due to her history of asthma, it is recommended to avoid beta-blockers (as the first dose they can cause airway narrowing and cause an asthma attack). Hence, she should be given topiramate. It should be noted that topiramate is teratogenic and should be avoided in women of childbearing age, however, this woman is menopausal.

Amitriptyline is a second-line drug for migraine prophylaxis and is considered in patients with episodic or chronic migraines who are not responsive to initial prophylactic treatment. It should be noted that amitriptyline is a tricyclic antidepressant that can be quite sedative.

Diclofenac is an NSAID. These drugs are used in the acute management of migraines alongside triptans (such as zolmitriptan). It would be inappropriate to prescribe this medication as prophylactic therapy.

Propranolol is the alternative first-line prophylactic management for migraine. Due to the patient's asthmatic history, it would be inappropriate to prescribe a beta-blocker if there is an alternative first-line option.

Sumatriptan is a triptan. Triptans are 5-HT receptor agonists used in the acute treatment of migraines but not in prophylaxis.

Question:

An 84-year-old man is seen in the clinic for follow up of heart failure with reduced ejection fraction. The remainder of his past medical history includes hypertension and hypercholesterolaemia.

He reports dyspnea on mild exertion, but not at rest. He is quite fatigued but denies any other symptoms. His examination is unremarkable with no signs of volume overload.

An echocardiogram is performed and reported as 'LVEF of 30-35% with no wall motion abnormalities. His ECG shows sinus rhythm with a heart rate of 79 bpm.

His medications are as follows:

Furosemide 40mg OD

Ramipril 10mg OD

Bisoprolol 5mg OD

Eplerenone 50mg OD

Which of the following agents should be considered for the treatment of this man's chronic heart failure?

A.Bumetanide

B.Digoxin

C.Ivabradine

D.Spironolactone

E.Valsartan

Answer:Ivabradine

Explanation:

Ivabradine should be considered in heart failure if the patient has sinus rhythm > 75/min and a LVEF < 35% and have not responded to to ACE-inhibitor, beta-blocker and aldosterone antagonist therapy

Important for meLess important

Bumetanide - incorrect. Bumetanide is a loop diuretic. Like furosemide, its primary site of action is in the thick ascending limb in the loop of Henle. As this patient is already on a loop diuretic there would be no benefit to the addition of a second agent in the same class. If volume overload was suspected, the dose of furosemide could be increased.

Digoxin - incorrect. While digoxin is sometimes added in patients with heart failure with reduced ejection fraction who have not responded to ACE-inhibitor, beta-blockers and aldosterone antagonist therapy, it is generally preferred in patients who have co-existent atrial fibrillation.

Ivabradine - correct. Ivabradine should be considered in heart failure if the patient has sinus rhythm > 75/min and a LVEF < 35% and have not responded to ACE-inhibitor, beta-blockers and aldosterone antagonist therapy.

Spironolactone - incorrect. This patient is already on aldosterone antagonist therapy in the form of eplerenone. Eplerenone is sometimes used instead of spironolactone in the management of heart failure with reduced ejection fraction to avoid the anti-androgenic side effects of spironolactone e.g. gynecomastia.

Valsartan - incorrect. This patient is already on ramipril, an ACE-inhibitor. The addition of valsartan, an ARB, is contraindicated.

Question:

A 54-year-old man is an inpatient on the neurology ward after being diagnosed with bacterial meningitis. After vomiting repeatedly and complaining of a severe headache, a CT head is carried out. Following review of the scan results, the doctor decides not to do a lumbar puncture.

Which of the following options can help manage this complication of meningitis?

A.Prescribing furosemide

B.Prescribing lactulose

C.Lying the patient flat

D.Lumbar puncture decompression

E.Elevating the head of the bed to 30º

Answer:Elevating the head of the bed to 30º

Explanation:

Head elevation to 30º is a simple first-step in the management of patients with raised ICP

Important for meLess important

Raised intracranial pressure (ICP) is a known complication of brain insults such as meningitis, hydrocephalus and trauma. It presents with headache and vomiting, and can manifest as decreased consciousness or a falling Glasgow Coma Score. Signs on examination that indicate raised ICP include papilloedema and Cushing's triad of widened pulse pressure, bradycardia and irregular breathing.

A simple management strategy that can be initiated in suspected raised ICP is to elevate the head of the bed to 30º. This can help relieve symptoms before further management can be initiated.

Giving furosemide is incorrect. Although diuretics can be used in the treatment of raised ICP, the diuretic used is mannitol, an osmotic diuretic, rather than furosemide.

Giving lactulose is also incorrect. Lactulose is an osmotic laxative that is used in the management of hepatic encephalopathy, but it is not used in treating raised ICP.

Lying the patient flat is not the best initial management. Lying the patient flat would cause an increase in ICP and worsen, not relieve symptoms. This is not the correct answer.

Performing lumbar puncture in someone with suspected raised ICP carries the risk of causing brain herniation, which can be fatal. Lumbar puncture is contraindicated in raised ICP for this reason.

Question:

A 25-year-old man returns from a gap-year in Central and South America and presents with a 2 month history of an ulcerating lesion on his lower lip. Examination of his nasal and oral mucosae reveals widespread involvement. What is the likely diagnosis?

A.Leishmaniasis

B.Chagas disease

C.Cutaneous larva migrans

D.Trypanosomiasis

E.Cutaneous gonococcal infection

Answer:Leishmaniasis

Explanation:

This patient most likely has leishmaniasis. The pattern of a primary skin lesion with mucosal involvement is characteristic of Leishmania brasiliensis

Question:

A 60-year-old man attends his GP with a progressive history of a cough. He states that initially, the cough was only present in the morning, but now it affects him throughout the day. The cough is productive of thick white sputum. He is also experiencing a reduced ability to undertake his activities of daily living due to increasing breathlessness.

On examination, there is increased chest diameter, reduced intensity breath sounds and hyper-resonant percussion.

Given the likely diagnosis, what would be expected on his pulmonary function test?

A.FVC = 4.0L:FEV1 = 3.2L

B.FVC = 4.75L:FEV1 = 3.5L

C.FVC = 4.75L:FEV1 = 4.0L

D.FVC = 4.8L:FEV1 = 4.5L

E.FVC = 5.0L:FEV1 = 4.5L

Answer:FVC = 4.75L:FEV1 = 3.5L

Explanation:

COPD and asthma have reduced FEV1/FVC ratio but FVC may be normal

Important for meLess important

FVC = 4.75L:FEV1 = 3.5L is the correct answer. This patient likely has a diagnosis of COPD, as evidenced by a progressive history of cough and shortness of breath. Examination findings also show a barrel chest, increased air trapping, and hyperinflation. COPD, like asthma, is an obstructive airway disease. Although the forced vital capacity may be normal, as seen in this case, the forced expiratory volume in one second (FEV1) is significantly reduced, resulting in a reduced FEV1/FVC ratio of <70%. Normally, when the lungs are forcefully expired, the smaller airways compress, increasing airway resistance to the point that no more air can be forced out of the alveoli. However, in obstructive diseases, the smaller airways are much narrower than normal, causing maximal expiration to be reached sooner than usual, and leading to a reduction in the FEV1/FVC ratio. In COPD, the airways are commonly narrowed due to several factors including but not limited to reduced elastic recoil, decreased expiratory force, loss of radial traction from the alveoli that helps keep the terminal bronchioles open, and luminal obstruction of the airways by secretions.

FVC = 4.0L:FEV1 = 3.2L is incorrect. Although this shows a normal FEV1/FVC ratio, there is a significantly reduced FVC and FEV1 capacity. This is consistent with restrictive lung disease. In cases of restrictive lung disease, the lungs may be stiffer, or there may be muscle weakness reducing the ability to maximally inspire air into the lungs, and there is reduced lung compliance. The elastic recoil is much more making the lungs smaller but harder to expand and chest expansion is reduced. Hence, due to reduced maximum inspiration, there is a reduced maximal forced vital capacity. Common restrictive causes include neuromuscular diseases, acute respiratory distress syndrome, sarcoidosis, severe obesity and asbestosis. The ratio will be normal as there is a proportional reduction in the FEV1.

FVC = 4.75L:FEV1 = 4.0L is incorrect. The FEV1/FVC ratio here is 84%. The normal ratio is usually between 70-85% in men hence this is a normal value of pulmonary function tests. The normal FVC in a man is usually between 4.75-5.5L and FEV1 between 3.5-4.5L.

FVC = 4.8L:FEV1 = 4.5L is incorrect. This also shows a normal FEV1/FVC ratio. As stated above, this would not be expected for a diagnosis of COPD.

FVC = 5.0L:FEV1 = 4.5L is incorrect. This again shows a normal FEV1/FVC ratio.

Question:

A 25-year-old woman presents to the labour ward for induction of labour. She is currently 42+0 weeks gestation with a singleton. She is gravida 2 para 1. She has attended all of her antenatal appointments as scheduled and has had an uncomplicated pregnancy so far.

At her last midwife appointment, at 41 weeks, she accepted a membrane sweep. She had also had a membrane sweep before that.

On vaginal examination today her cervix is anterior, soft, 1cm dilated and around 60% effaced. Foetal station is -2. The bishop score is calculated at 8.

What would be the preferred initial method of induction of labour in this patient?

A.Amniotomy and IV oxytocin

B.Cervical balloon

C.Membrane sweep

D.Oral misoprostol

E.Vaginal prostaglandins

Answer:Amniotomy and IV oxytocin

Explanation:

Amniotomy and an intravenous oxytocin infusion is the preferred method of induction of labour if the Bishop score is > 6

Important for meLess important

The correct answer is amniotomy and IV oxytocin. This is the preferred method of induction if the Bishop score is >6, this patient's Bishop score is 8 (see below for how to calculate the Bishop score). A score of 8, suggests induction with amniotomy and IV oxytocin is likely to be successful. Oxytocin can lead to excessive uterine activity and amniotomy can introduce infection and is associated with higher rates of cord prolapse. However, for this patient, the likely benefits of a timely and successful induction outweigh the risks.

Cervical balloon is the wrong answer and would be indicated if the Bishop score was <6. This is because a lower Bishop score suggests that amniotomy and IV oxytocin may not be successful as cervical ripening may be needed to prepare the cervix e.g. in the form of a cervical balloon.

Membrane sweep is the wrong answer as the patient has already had two membrane sweeps and is now post-dates, therefore it would now be appropriate to try another method of induction.

Oral misoprostol is the wrong answer and would be indicated if the Bishop score was <6, it would be more appropriate to use amniotomy and IV oxytocin as her Bishop score is >6.

Vaginal prostaglandins is the wrong answer and would be indicated if the Bishop score was <6. As mentioned above, a lower Bishop score would suggest that induction may be unsuccessful without cervical ripening to prepare the cervix.

Question:

A 76-year-old man presents to hospital with fatigue, confusion and constipation. He has a past medical history of prostate cancer, hypertension and hypercholesterolemia. Bloods reveal a significantly raised calcium.

What is the ECG most likely to show?

A.Prolongation of the QT interval

B.Fixed prolonged PR interval

C.Tall T wave

D.S1Q3T3

E.Shortening of the QT interval

Answer:Shortening of the QT interval

Explanation:

The main ECG abnormality seen with hypercalcaemia is shortening of the QT interval

Important for meLess important

This patient presents with hypercalcemia on a background of prostate cancer. Cancer is the most common cause of hypercalcaemia in hospital, and approximately 20-30% of patients with cancer develop hypercalcemia. Hypercalcaemia is associated with shortening of the QT interval.

Prolongation of the QT interval can be caused by the following electrolyte disturbances; hypokalemia, hypomagnesaemia and hypocalcemia. It can also be caused by hypothermia, myocardial ischemia and congenital long QT syndrome.

Fixed prolonged PR interval is seen with first-degree heart block.

Tall T waves are seen in hyperkalemia. This is often an early sign that precedes other changes including flattened P waves, PR prolongation and eventually a sine-wave appearance.

S1Q3T3 refers to an S wave in lead I, a Q wave in lead III and an inverted T wave in lead III. This is an uncommon finding that is classically associated with pulmonary embolism (PE). However, this finding is neither sensitive or specific to PE.

Question:

A 34-year-old female presents due to the development of a purpuric rash on the back of her legs. Her only regular medication is Microgynon 30. She also reports frequent nose bleeds and menorrhagia. A full blood count is requested:

Hb 11.7 g/dl

Platelets 62 \* 109/l

WCC 5.3 \* 109/l

What is the most likely diagnosis?

A.Drug-induced thrombocytopenia

B.Henoch-Schonlein purpura

C.Thrombotic thrombocytopenic purpura

D.Idiopathic thrombocytopenic purpura

E.Antiphospholipid syndrome

Answer:Idiopathic thrombocytopenic purpura

Explanation:

The isolated thrombocytopenia in a well patient points to a diagnosis of ITP. The combined oral contraceptive pill does not commonly cause blood dyscrasias

Question:

A 25-year-old G1P0 woman at 8 weeks gestation presents to the emergency department with nausea and vomiting which have been worsening over the last 4 weeks despite cyclizine and metoclopramide. She is unable to keep down fluids. Her weight has dropped from 75 to 68kg over this time.

Her blood pressure is 112/80 mmHg, her heart rate is 80/min, and her temperature is 37.2ºC. Otherwise, an examination is normal.

Hb 120 g/L Female: (115 - 160)

Platelets 385 \* 109/L (150 - 400)

WBC 10.2 \* 109/L (4.0 - 11.0)

Na+ 129 mmol/L (135 - 145)

Cl- 90 mmol/L (95 - 110)

K+ 3.3 mmol/L (3.5 - 5.0)

Urea 6.9 mmol/L (2.0 - 7.0)

Creatinine 124 µmol/L (55 - 120)

CRP 3 mg/L (< 5)

What fluid should be prescribed?

A.IV compound sodium lactate

B.IV normal saline

C.IV normal saline with dextrose

D.IV normal saline with potassium chloride

E.Oral fluids only

Answer:IV normal saline with potassium chloride

Explanation:

Women who have been admitted with hyperemesis gravidarum are generally given IV normal saline with added potassium as hypokalaemia is common

Important for meLess important

The correct answer is IV normal saline with potassium chloride. This woman has severe hyperemesis gravidarum as she has nausea and vomiting with onset during the first trimester of pregnancy, and is now dehydrated, electrolyte depleted, and has lost 9% of her pre-pregnancy body weight. This has continued despite dual antiemetics, and she is now unable to keep down oral fluids. For this reason, she should be admitted to the hospital and given intravenous rehydration with normal saline. She is hypokalaemic, and therefore she should be given potassium replacement as well.

IV compound sodium lactate solution (CSL) is incorrect. CSL, or Hartmann’s solution, is an isotonic solution that contains sodium lactate, sodium chloride, potassium chloride, and calcium chloride dihydrate. This is used for perioperative care in most situations, but this patient requires volume repletion and normal saline with potassium is recommended in these patients. She also requires potassium replacement at a higher concentration than what is provided in CSL.

IV normal saline is incorrect because this patient is hypokalaemic and also requires potassium replacement. Hypokalaemia is common in women with hyperemesis gravidarum and is important to correct to avoid cardiac arrhythmia.

IV normal saline with dextrose is incorrect because this patient is hypokalaemic and also requires potassium replacement. Dextrose is not recommended by the Royal College of Obstetricians and Gynaecologists (RCOG) guidelines unless serum sodium levels are normal and thiamine has been administered (to avoid precipitation of Wernicke’s encephalopathy). Thiamine supplementation would be recommended for this woman due to her prolonged vomiting and resultant malnutrition.

Oral fluids only is incorrect because this patient is volume depleted and is unable to keep oral fluids down despite dual antiemetic therapy. Admission to the hospital with intravenous fluid replacement would be appropriate for her.

Question:

A 42-year-old female has presented with vomiting. She has had multiple episodes of vomiting over the past 3 days and has felt extremely nauseous. In addition to this she describes having a constant headache, and has felt particularly tired. Her past medical history includes depression which is managed with sertraline).

On examination, her pulse is 87 beats per minute, blood pressure 127/76mmHg and oxygen saturations of 98% on air. There is no evidence of peripheral oedema or a raised jugular venous pressure. On auscultation of her chest, heart sounds are normal and the lungs are unremarkable. You send for some investigations which yield the following:

Na+ 122 mmol/L (135 - 145)

K+ 3.8 mmol/L (3.5 - 5.0)

Bicarbonate 27 mmol/L (22 - 29)

Urea 3.1 mmol/L (2.0 - 7.0)

Creatinine 86 µmol/L (55 - 120)

Random Blood Glucose 4.1 mmol/L (4 - 11)

Serum osmolality 263 mOsm/kg (275 - 295)

Urine osmolality 857 mOsm/kg (300 - 900)

Which of the following management strategies is effective in the short term?

A.Fluid restriction

B.Furosemide

C.Increased fluid intake

D.Theophylline

E.Vasopressin

Answer:Fluid restriction

Explanation:

SIADH is treated with fluid restriction

Important for meLess important

This patient has a marked hyponatremia alongside a low serum osmolality and high urine osmolality. This is therefore diagnostic of syndrome of inappropriate antidiuretic hormone secretion (SIADH).

Fluid restriction is an effective short-term treatment for SIADH. This is because restriction of fluids temporarily increase the serum sodium in order for the underlying cause of SAIDH to be identified and treated.

Increasing fluid intake would have the opposite effect by further reducing the serum sodium causing a more severe hyponatremia.

Loop diuretics (such as furosemide) may be effective in hypervolemic patients with SIADH, however it is clear from this question stem that this patient is euvolemic.

In SIADH there is a lack of an effective negative feedback mechanism which results in continual anti-diuretic hormone (ADH) production, independent of serum osmolality. Giving vasopressin/ADH would therefore be inappropriate since this will worsen the effects of the SIADH.

Theophylline is a medication known to cause SIADH, not treat it.

Question:

A 32-year-old woman is seen in clinic having had recurrent episodes of infective sinusitis requiring 6 courses of antibiotics in the past year. She was admitted with pneumococcal pneumonia 15 months ago. She is a non-smoker with no other significant past medical history.

The respiratory consultant decides to order the following tests.

Hb 132 g/l

Platelets 342 \* 109/l

WBC 13 \* 109/l

Neutrophils 10.5 \* 109/l

Na+ 138 mmol/l

K+ 4.1 mmol/l

Urea 2.6 mmol/l

Creatinine 78 µmol/l

Total protein 31 g/l

CT sinus: There is diffuse mucosal thickening in the maxillary entry and ethmoid complex however no polyps are seen.

Which of the following investigations is most likely to help guide further management?

A.Procalcitonin

B.MRI sinus scan

C.Indium-111 leukocyte scan

D.Serum immunoglobulins

E.CRP

Answer:Serum immunoglobulins

Explanation:

The clue to the diagnoses is multiple episodes sinusitis as well as pneumococcal pneumonia in a young, non-smoking patient with no other explanation for immunodeficiency. This should prompt a screen for primary immunodeficiency including quantification of serum immunoglobulins. Procalcitonin, CRP and and indium-111 scan would identify the presence of bacterial infection but this is not helpful to further management. An MRI sinus scan would not add anything to the CT that has already been performed. Serum immunoglobulins would reveal the underlying diagnoses and allow specialist prophylactic management.

Common Variable Immunodeficiency

This condition is one more common causes of primary immunodeficiency, affecting 1 in 25,000 adults. It is defined by low serum concentrations of antibodies and immunoglobulins which increases susceptibility to infections (especially ENT and respiratory tract infections). It most commonly presents in the 3rd - 4th decades however can also present in childhood in around 20%. Management includes immunoglobulin replacement therapy as well as prophylactic vaccination and antibiotics for chronic respiratory tract infections.

Question:

A 30-year-old woman who is investigated for obesity, hirsutism and oligomenorrhoea is diagnosed as having polycystic ovarian syndrome (PCOS) following an ultrasound scan. She is hoping to start a family and her doctor starts metformin to try and improve her fertility. What is the mechanism of action of metformin in PCOS?

A.Stimulates the release of insulin from the pancreas

B.Blocks the insulin mediated development of multiple immature follicles in the ovaries

C.Increases peripheral insulin sensitivity

D.Blocks the conversion of oestradiol to testosterone

E.Increases hepatic gluconeogenesis

Answer:Increases peripheral insulin sensitivity

Explanation:

The majority of patients with polycystic ovarian syndrome have a degree of insulin resistence which in turn can lead to complicated changes in the hypothalamic-pituitary-ovarian axis.

Question:

A 55-year-old man is brought to the emergency department after being involved in a motor vehicle accident. He has severe, sharp, pleuritic chest pain.

On examination his observations are normal and there is significant chest wall tenderness and bruising. No other abnormalities are noted, and respiratory movements are normal.

Chest x-rays and CT scanning confirm fractures of the right 4th and left 6th ribs. He is admitted and given IV morphine which, despite being titrated up to the maximum dose, is ineffective at controlling his pain.

What is the most appropriate next step in his management?

A.Arrange chest physiotherapy

B.Arrange regional nerve block

C.Arrange sedation and mechanical ventilation

D.Arrange surgical fixation

E.Increase dose of morphine

Answer:Arrange regional nerve block

Explanation:

Nerve blocks may be considered if a rib fracture is not controlled by normal analgesia

Important for meLess important

This patient has sustained rib fractures and does not have evidence of a flail chest, which would be characterised by the paradoxical movement of the flail segment of the chest when breathing, which would require immediate surgical management and invasive ventilation. For all other patients that are stable, rib fractures are generally managed conservatively with good analgesia. If analgesia is not sufficient, patients may not breathe effectively, which can predispose them to complications such as chest infections and atelectasis.

Arrange regional nerve block is correct as they are the next form of analgesia recommended in rib fractures if standard analgesia (such as paracetamol, NSAIDs, or morphine) is ineffective. This is because it may relieve pain without having to arrange more invasive techniques such as mechanical ventilation and surgery. Since this patient is on the maximum dose of morphine, this is the most appropriate next step. As mentioned above, adequate analgesia promotes effective breathing and better recovery.

Arrange chest physiotherapy is incorrect. Although all patients with rib fractures should have chest physiotherapy to improve mucus and secretion clearance and improve recovery, this can only be done once adequate analgesia is in place. Arranging this without adequate analgesia would mean the patient is still in pain and would not breathe effectively as a result.

Arrange sedation and mechanical ventilation is incorrect as this is indicated in patients that are unstable and/or have features of a flail chest or features of complications such as pulmonary contusion. Since this patient is stable and has no evidence of a flail chest or any complications, this step is not necessary and is associated with risks such as failure, injuries sustained due to intubation, and infection. Adequate analgesia alone via a regional nerve block is more likely to be effective.

Arrange surgical fixation is incorrect. This is considered if the pain is not controlled with analgesia and the fractures have failed to heal following 12 weeks of conservative management. This patient has only been given standard analgesia (IV morphine) and has not yet tried a regional nerve block. Therefore, jumping to this step may not be necessary, as it is associated with complications such as bleeding, infection, and further injury to surrounding structures.

Increase dose of morphine is incorrect as this patient is already taking the maximum dose of morphine and is still experiencing pain. Increasing the dose is unlikely to yield any benefits and may increase the risk of adverse effects. Therefore, other options for analgesia, such as regional nerve blocks, should be explored.

Question:

A 45-year-old man is concerned about pain management during a planned radical prostatectomy he is scheduled to undergo next month. The consultant discusses different options available to him including general and regional anaesthesia. Which of the following is an absolute contraindication to the use of regional anaesthesia such as spinal, epidural or plexus block?

A.Adverse reaction to general anaesthesia

B.The need for post-operative intermittent positive-pressure ventilation

C.Pre existing neurological deficit

D.Concurrent administration of therapeutic dose of warfarin

E.Long history of back pain

Answer:Concurrent administration of therapeutic dose of warfarin

Explanation:

Therapeutic anticoagulation is an absolute contraindication to the use of regional anaesthesia due to the risk of bleeding and the severity of a hematoma within the rigid space of the central nervous system.

Warfarin is usually stopped 5 days pre-operatively and substituted with a Low Molecular Weight Heparin (dose is dependent on the individual thrombosis risk stratification, e.g. CHADs score, time from pulmonary embolism etc). INR should be checked as well, and ideally <1.4, without other coagulation abnormalities.

Question:

A 27-year-old man presents to his GP feeling generally unwell complaining of joint pain and swelling. He returned from a walking trip in Thailand one month ago and one day after his return he developed severe watery diarrhoea and abdominal cramps that lasted for one week.

On examination he appears unwell and looks fatigued. He has large effusions of the left knee and right ankle along with tender planter fascia bilaterally. He also has tender metatarsophalangeal joints on both feet. On closer inspection of the feet he has a papular rash on the soles of both feet.

For the last week he has been taking regular paracetamol and ibuprofen with minimal improvement in symptoms.

Given the most likely diagnosis what is the most appropriate next step in this patients management?

A.Biological disease modifying antirheumatic drug (DMARD) therapy

B.Celecoxib

C.Intra-articular steroid injection of left knee and right ankle

D.Oral prednisolone

E.Sulfasalazine

Answer:Oral prednisolone

Explanation:

Reactive arthritis is not typically acute - it can develop up to 4 weeks after precipitating infection and can run a relapsing-remitting course over several months

Important for meLess important

Oral prednisolone is the correct answer. This patient has a severe polyarthritis so systemic corticosteroids would be indicated. Dosing based on severity of arthritis, with tapering to lowest effective dose typical starting doses 20-40mg/day.

TNF inhibitor therapy would not be indicated here. THF inhibitor therapy is reported to be safe and effective in patients with reactive arthritis refractory to NSAID or non-biologic DMARD therapy.

Celecoxib is incorrect. This patient did not have a response to regular ibuprofen for one week. Although patients often require high doses of NSAIDS that have a long half-life (Naproxen 500mg BD) the next step here would be oral corticosteroids.

Intra-articular injections are useful for large joint effusions. However this patient has multiple joints involved and is systemically unwell so systemic corticosteroids are more appropriate.

Sulfasalazine is incorrect. DMARDs may be indicated in patients with acute reactive arthritis refractory to nonsteroidal anti-inflammatory drugs (NSAIDs) and/or corticosteroids or for those who develop chronic disease. Sulfasalazine and methotrexate are the most commonly used DMARDs for chronic reactive arthritis.

Question:

A 22-year-old woman presents to her GP to discuss contraception. She is otherwise well, with no medical conditions or regular prescriptions. The patient is in a long-term relationship, works as a personal trainer and plays tennis competitively.

On examination, her resting heart rate was 49/min with a regular dropped beat after every 4 successive beats. Her blood pressure was 101/65 mmHg. An ECG showed a progressively lengthening PR-interval proceeding every dropped beat.

How should this patient's heart rate be managed?

A.Follow-up ECG in 3 months

B.IV atropine

C.Initiate levothyroxine

D.Routine referral to cardiology

E.Safety net and reassurance

Answer:Safety net and reassurance

Explanation:

Mobitz type 1 (Wenckebach phenomenon) is a normal variant in an athlete

Important for meLess important

The correct answer is safety net and reassurance. This patient has second-degree heart block (Mobitz type 1 - AKA Wenckebach) which is confirmed by the ECG findings. Mobitz type 1 can indicate a conduction abnormality but is a normal variant in athletic patients. As the patient is young, fit, and well this is unlikely to be pathological. The lack of physical symptoms is also reassuring. The prognosis for these patients is excellent as there is no known risk of progression to other forms of heart block. For this reason, no further management is required.

A follow-up ECG in 3 months is not indicated in this patient. As the patient is otherwise well and not experiencing any symptoms it is more appropriate to provide safety netting advice than to organise another ECG.

IV atropine is not the right option. It is indicated in the emergency management of bradycardias in patients with life-threatening signs, such as shock, syncope, myocardial infarction or heart failure. However, as this patient is not acutely unwell or experiencing these signs IV atropine is not appropriate. Her bradycardia is likely physiological and a result of her physical fitness.

The option to initiate levothyroxine is incorrect. This is used to treat hypothyroidism. As this patient is not experiencing any signs of hypothyroidism like weight gain, fatigue, cold intolerance or constipation, it is unlikely to be beneficial.

The patient does not need a routine referral to cardiology as her second-degree heart block is a normal variant in athletic patients such as herself.

Question:

A 28-year-old man is reviewed in clinic accompanied by his housemate. The man explains that on a few occasions, he has had short episodes, around 30 seconds, where he is unresponsive to his surroundings, but does not lose consciousness. During these times, he has a strange smell and unusual taste in his mouth. His housemate says he will smack his lips and always move his right hand in a finger-picking motion whilst he’s unresponsive.

He has no medical history and no drug allergies.

Given the likely diagnosis, what is the appropriate management?

A.Ethosuximide

B.Lamotrigine

C.Lorazepam

D.NSAIDs and sumatriptan

E.Sodium valproate

Answer:Lamotrigine

Explanation:

Epilepsy medication for males:

generalised seizure: sodium valproate

focal seizure: lamotrigine or levetiracetam

Important for meLess important

Lamotrigine is the correct answer. This man has presented with repeated episodes of focal-aware seizures. This is likely to be originating in the temporal lobe given the presenting symptoms of change in taste and smell, repetitive finger-picking movements and lip-smacking. It is a focal aware seizure as even though he is unresponsive during episodes, he is retaining consciousness throughout. Typically these only last for approximately 30 seconds. The first-line treatment for focal seizures in men is lamotrigine or levetiracetam, making lamotrigine the correct answer (as levetiracetam is not an answer option).

Ethosuximide is incorrect. This is the appropriate treatment for an absence seizure. Whilst this can present in a similar way, typical symptoms of an absence seizure include staring into space for a few seconds and can be accompanied by lip-smacking and eyelid rapid blinking. In this man, the presence of a change in taste and smell, along with the finger-picking movement should raise suspicion of a focal seizure, in particular, originating in the temporal lobe.

Lorazepam is incorrect. If the patient was having a generalised tonic-clonic seizure that was not terminating, intravenous lorazepam can be given. This is known as status epilepticus. The seizures in this man do not occur for longer than 30 seconds and are not generalised tonic-clonic seizures making this option incorrect.

NSAIDs and sumatriptan is incorrect. This is a treatment for migraines. Sometimes an aura preceding a migraine can present with similar symptoms such as a change in taste and smell, however, it does not account for the unresponsiveness. This man is not complaining of a headache making a migraine with aura very unlikely as the diagnosis.

Sodium valproate is incorrect. If this man was having a generalised tonic-clonic seizure, sodium valproate is the first-line management. However, there is no history of muscle stiffness and jerking or loss of consciousness.

Question:

A 22-year-old man is admitted to hospital with a lower respiratory chest infection. He had a splenectomy after being involved in a car accident. What is the most likely infective organism?

A.Haemophilus influenzae

B.Staphylococcus aureus

C.Rhinovirus

D.Mycobacterium tuberculosis

E.Moraxella catarrhalis

Answer:Haemophilus influenzae

Explanation:

Organisms causing post splenectomy sepsis:

Streptococcus pneumoniae

Haemophilus influenzae

Meningococci

Important for meLess important

Encapsulated organisms carry the greatest pathogenic risk following splenectomy. The effects of sepsis following splenectomy are variable. This may be the result of small isolated fragments of splenic tissue that retain some function following splenectomy. These may implant spontaneously following splenic rupture (in trauma) or be surgically implanted at the time of splenectomy.

Question:

A 56-year-old motorcyclist is involved in a road traffic accident and sustains a displaced femoral shaft fracture. Not other injuries are identified on the primary or secondary surveys. The fracture is treated with closed, antegrade intramedullary nailing. The following day the patient becomes increasingly agitated and confused. On examination he is pyrexial, hypoxic SaO2 90% on 6 litres O2, tachycardic and normotensive. Systemic examination demonstrates a non blanching petechial rash present over the torso. What is the most likely explanation for this?

A.Pulmonary embolism with paradoxical embolus

B.Fat embolism

C.Meningococcal sepsis

D.Alcohol withdrawl

E.Chronic sub dural haematoma

Answer:Fat embolism

Explanation:

This man has a recent injury and physical signs that would be concordant with fat embolism syndrome. Meningococcal sepsis is not usually associated with hypoxia initially. Pulmonary emboli are not typically associated with pyrexia.

Question:

A 40-year-old woman presents on the fifth day after a normal delivery. Her husband has brought her in to accident and emergency, after he noticed an abrupt change in her behaviour. He describes her as confused and restless. On mental state examination she describes racing thoughts, low mood and suicidal ideation. Pressurised speech is also evident. What is the most likely diagnosis?

A.Baby blues

B.Puerperal psychosis

C.Postpartum depression

D.Mania

E.Anxiety

Answer:Puerperal psychosis

Explanation:

Puerperal psychosis is a condition characterised by an acute onset of a manic or psychotic episode shortly after childbirth. An abrupt change in mental state is a red flag for puerperal psychosis.

In contrast the baby blues is associated with mild depressive symptoms shortly after birth, which often only last a few days.

Although postpartum depression can present with psychosis, symptoms usually appear within two weeks to a month after delivery. In addition, the manic symptoms described in the question (restlessness, racing thoughts and pressurised speech) would be unlikely to occur in a depressive episode.

Question:

An 84-year-old female presents with pain and stiffness of her pelvic and shoulder girdle. She also complains of painful mastication. She drinks approximately 15 units of alcohol per week. Her current medication include atorvastatin and amlodipine. Investigations demonstrate an ESR of 95mm/hour.

What is the most likely diagnosis?

A.Polymyositis

B.Polymyalgia rheumatica

C.Fibromyalgia

D.Alcoholic myopathy

E.Statin-induced myopathy

Answer:Polymyalgia rheumatica

Explanation:

The clinical features and raised ESR is suggestive of polymyalgia rheumatica. The painful mastication indicates that the patient may also be suffering from temporal arteritis. It would be important to treat promptly with high dose steroids.

To differentiate between polymyalgia rheumatica and statin-induced myopathy, ESR is usually measured. Patients with polymyalgia rheumatica will have a significantly elevated ESR, whereas patients with statin myopathy would have a normal ESR.

Question:

An 83-year-old woman has collapsed in her room and you are responding to the medical emergency call.

Just before you arrived, she suddenly collapsed and the nurses managed to get her back into bed and attach monitoring equipment.

She was originally admitted with sinus bradycardia and her bisoprolol has been stopped.

She is barely conscious and you note on the monitor a heart rate of 28/min and a BP of 84/51mmHg.

What is the most appropriate immediate management?

A.Adenosine

B.Adrenaline

C.Amiodarone

D.Atropine

E.DC cardioversion

Answer:Atropine

Explanation:

Symptomatic bradycardia is treated with atropine

Important for meLess important

This question tests knowledge of the emergency management of bradycardia which is based on the Resus Council guidelines.

The patient has a sinus bradycardia and is unstable. She is hypotensive and unresponsive.

The correct answer is to give atropine which is the first-line temporising measure. This works as an anti-cholinergic to block the parasympathetic nervous system and thus increases heart rate. It only lasts a short time so there are more definitive measures that can be used to treat bradycardia such as isoprenaline infusions, temporary pacing or a permanent pacemaker.

Adenosine is used to treat supraventricular tachycardia (SVT) as it causes a short-lived heart block by blocking the conduction of the AV node. It should not be used in bradycardia.

Adrenaline is used intravenously in cardiac arrest and is part of the advanced life support (ALS) algorithm. It can also be used as an infusion for refractory bradycardia but should only be given in monitored and supported environments such as ICU.

Amiodarone is part of the ALS tachycardia algorithm and is used for treating ventricular tachycardia (VT) and ventricular fibrillation (VF). It causes bradycardia as a side effect.

DC cardioversion is the recommended treatment of choice for patients with tachycardia who are unstable, but it is not performed for bradycardia.

Question:

A 46-year-old woman is reviewed by her GP after suffering a humeral fracture 2 weeks prior. During her hospital admission, she was found to have low vitamin D levels and was diagnosed with osteomalacia.

On questioning, she explains that she has been fatigued for the last 6 months. She reports no other symptoms other than ongoing bloating and non-bloody diarrhoea, which she feels is due to irritable bowel syndrome.

She has a history of Grave’s disease which is treated with carbimazole. Thyroid function during her admission was normal.

What is the most appropriate next step?

A.DEXA scan

B.Measure anti-TTG and total IgA

C.Oral bisphosphonates

D.Oral vitamin D replacement

E.Refer for oesophagogastroduodenoscopy (OGD)

Answer:Measure anti-TTG and total IgA

Explanation:

Diarrhoea, fatigue, osteomalacia → ?coeliac disease

Important for meLess important

Measure anti-TTG and total IgA is correct. This patient has osteomalacia, symptoms of diarrhoea and fatigue, and a history of autoimmune thyroid disease. Coeliac disease should therefore be a top differential, an autoimmune condition that can lead to osteomalacia as a result of impaired vitamin D absorption secondary to villous atrophy. First-line investigation for coeliac disease is to measure anti-TTG alongside total IgA levels.

DEXA scan is incorrect. DEXA scan is used to calculate fracture risk in patients with suspected osteoporosis. It is not used in the management of osteomalacia. Furthermore, a DEXA scan is rarely indicated in patients under 50 years unless they have major risk factors such as prolonged corticosteroid use.

Oral vitamin D replacement is incorrect. This patient will need vitamin D replacement therapy but, as her deficiency is likely secondary to malabsorption, she will either need high-dose vitamin D, which would be initiated by a specialist or wait until her coeliac disease is treated and then loaded with vitamin D. As such, it is more important to address the underlying cause of her deficiency before initiating replacement therapy.

Refer for oesophagogastroduodenoscopy (OGD) is incorrect. OGD is used in the diagnosis of coeliac disease, via duodenal biopsy, but is typically only undertaken following a positive anti-TTG result. Therefore, an anti-TTG and total IgA should first be taken before referral.

Oral bisphosphonates is incorrect. Bisphosphonates, such as alendronic acid, are used in the management of osteoporosis but have no role in the management of osteomalacia.

Question:

A 52-year-old woman with a history of breast cancer is admitted with acute dyspnoea. Her respiratory rate on admission is 42 / min and her oxygen saturations are 87% on room air. A pulmonary embolism is suspected and she is transferred to the high dependency unit after being treated with oxygen and enoxaparin. Which one of the following would be strongest indication for thrombolysis?

A.Extensive deep venous thrombosis

B.Hypotension

C.Patient choice following informed consent

D.Hypoxaemia despite high flow oxygen

E.ECG showing right ventricular strain

Answer:Hypotension

Explanation:

Massive PE + hypotension - thrombolyse

Important for meLess important

Question:

A 65-year-old man presents to the GP for a follow-up after a 10-day course of cefalexin for pyelonephritis. However, after two weeks the flank pain has not resolved and he is still intermittently febrile, feeling fatigued and not his ‘usual self’. In addition, he noticed a small amount of blood in his urine yesterday.

He has a history of hypercholesterolaemia but is otherwise well. Vital signs are normal apart from a temperature of 37.8ºC. He appears tired. There is mild flank tenderness but otherwise abdominal examination is normal.

What is the most appropriate action for the GP to take?

A.Change to alternative antibiotic

B.Perform renal ultrasound

C.Prescribe an NSAID for renal colic

D.Refer for bladder cystoscopy

E.Refer urgently for suspected renal cell malignancy

Answer:Refer urgently for suspected renal cell malignancy

Explanation:

Ongoing loin pain, haematuria, pyrexia of unknown origin → ?renal cell cancer

Important for meLess important

The correct answer is refer urgently for suspected renal cell malignancy. This man’s suspected kidney infection has failed to respond to normal antibiotics, and haematuria is concerning for cancer that has invaded the renal collecting system. Renal cell carcinoma (RCC) is often diagnosed incidentally when imaging is done for another reason; when patients are symptomatic it suggests a more advanced regional disease. The classic triad of RCC is flank pain, haematuria, and a palpable abdominal renal mass but all three of these are not consistently present. Around 20% of patients with RCC have a fever, the aetiology of this is unknown. The most appropriate management is to refer to secondary care for a workup of possible cancer (within 2 weeks according to NICE), for which the first imaging study is usually CT.

Change to alternative antibiotic is incorrect, as the features on history and examination are concerning for malignancy, and therefore investigation of this should be the first priority. If CT did not find a tumour, an atypical pyelonephritis could be considered later but the patient should continue the current course of antibiotics at this stage, as it is possible that an infection is present in the kidney.

Perform renal ultrasound is incorrect. The patient requires an urgent referral for a suspected renal cell malignancy, so delaying this referral until an ultrasound is done would be inappropriate, and CT would be a more sensitive test for finding cancer. Referral to secondary care is important for this patient.

Prescribe NSAID for renal colic is incorrect. While the combination of flank pain and haematuria may be typical for renal calculi, the presentation is not acute and the pain is not typical of renal colic (sharp, intermittent, radiating to the groin). Given the fever and timeline of the presentation, the pain could be related to cancer so this should be ruled out first.

Refer for bladder cystoscopy is incorrect. Patients with frank/macroscopic haematuria should have an assessment by a urologist, and the most appropriate initial imaging investigation for this patient would be a CT scan of the abdomen. Cystoscopy should be considered as part of the urology assessment only once a CT scan has been done and as part of a workup for cancer, therefore this option is not the best answer.

Question:

Mrs Smith is a 47-year-old woman who attends the emergency department with a painful, swollen left calf. She underwent a hysterectomy for cervical cancer 10 weeks ago. On examination her left leg is tender along the deep venous system and pitting oedema is present. Examination of her right leg is unremarkable. You suspect a deep vein thrombosis (DVT). She is clinically stable and the radiology department informs you it will be at least 5 hours until they can carry out an ultrasound doppler scan. A D-dimer is awaited.

What is the most appropriate management for Mrs Smith?

A.Commence her on low-molecular-weight heparin (LMWH) prophylaxis

B.Commence her on a direct oral anti-coagulant (DOAC)

C.Commence her on treatment dose LMWH

D.Discharge her and ask her to return the next day for her scan

E.Wait until the ultrasound doppler can be performed

Answer:Commence her on a direct oral anti-coagulant (DOAC)

Explanation:

If investigating a suspected DVT, and either the D-dimer or scan cannot be done within 4 hours, then start a DOAC

Important for meLess important

Mrs Smith has a Wells' score of 4 (treatment of cancer within the last 6 months, major surgery within 12 weeks, localised tenderness along the deep venous system and pitting oedema in the symptomatic leg) and so would be classed as high risk for DVT. This means that she will need to undergo an ultrasound doppler scan of her leg. The fact that it will take more than 4 hours for this to take place means that the most appropriate thing to do is to order a d-dimer (this has been done) and commence her on a DOAC while waiting.

LMWH would not be the correct management for a DVT and so neither the treatment nor the prophylactic dose would be appropriate in this case.

Discharging her without any treatment would be unsafe and could lead to her experiencing complications.

It may be appropriate to wait until the ultrasound doppler can be performed but as this will take longer than 4 hours it should not happen without starting any treatment in the meantime.

Question:

You are discussing conception with two parents who both have achondroplasia. They ask you what the chances are that a child of theirs would be of normal height. What is the correct response?

A.0%

B.25%

C.50% independent of gender

D.50% if male

E.75%

Answer:25%

Explanation:

Many questions relating to autosomal dominant conditions are based around one of the parents being affected. With achondroplasia both parents are often affected which can make the interpretation slightly trickier.

As an autosomal dominant condition, two affected parents can expect:

1 in 4 chance of an unaffected child

1 in 2 chance of an affected heterozygous child

1 in 4 chance of an affected homozygous child. With achondroplasia children unfortunately don't live past the first few months of life

The answer of having a child of normal height is therefore 1 in 4 or 25%.

Question:

What advice should you give a woman (who is NOT pregnant) if she asks what is the recommended amount of alcohol she can drink?

A.No more than 14 units of alcohol per week. Try not to drink on more than 2 days per week

B.No more than 14 units of alcohol per week. If you do drink as much as 14 units per week, it is best to spread this evenly over 3 days or more

C.Should drink no more than 7-14 units of alcohol per week (and no more than 2 units in any one day)

D.Should drink no more than 21 units of alcohol per week (and no more than 3 units in any one day)

E.Should drink no more than 7 units of alcohol per week (and no more than 2 units in any one day)

Answer:No more than 14 units of alcohol per week. If you do drink as much as 14 units per week, it is best to spread this evenly over 3 days or more

Explanation:

Question:

A 25-year-old woman presents to the clinic with a history of one week of rectal pain, particularly during defaecation and while sitting down. She has Crohn’s disease that was diagnosed 10 years ago and is being managed with azathioprine.

On examination, there is inflammation of the skin around the anus. A small indurated opening is located just superior to the anus which is very tender on palpation and has a small amount of faecal-stained fluid draining from it.

What is the most appropriate medication for this patient?

A.High-dose oral prednisone

B.Oral amoxicillin

C.Oral cyclosporin

D.Oral loperamide

E.Oral metronidazole

Answer:Oral metronidazole

Explanation:

Oral metronidazole is useful in the management of Crohn's patients who develop a perianal fistula

Important for meLess important

The correct answer is oral metronidazole. This patient has developed an infected perianal fistula which is most likely to be related to her Crohn's disease, where penetrating inflammation creates a fistula tract from the rectum or anus through to the skin and becomes colonised with gastrointestinal bacteria. The primary treatment goal of these fistulas is usually complete closure. For patients with Crohn's disease, evidence supports conservative management with antibiotics (with or without a seton drain), and surgical closure is reserved for extensive complex fistulas or those that fail to respond to antibiotics. The antibiotic choice must have anaerobic organism cover for perianal fistulas, so metronidazole or ciprofloxacin are good choices.

High-dose oral prednisone is incorrect because the acute problem for this patient is the formation of an infected fistula tract rather than a flare of her Crohn's disease. Short, weaning courses of high-dose glucocorticoids can be used to control acute inflammation from inflammatory bowel disease which often results in rapid induction of remission. However, the priority here is to control the superimposed infection.

Oral amoxicillin is incorrect because anaerobic micro-organism cover is required for gastrointestinal bacterial infections. Metronidazole or ciprofloxacin are recommended antibiotics for the treatment of perianal fistulas in the context of Crohn's disease.

Oral cyclosporin is incorrect. This is an immunomodulatory medication used to maintain remission in some patients with inflammatory bowel disease, but the most important thing to manage for this patient is her perianal fistula rather than flares of her Crohn’s disease.

Oral loperamide is incorrect. Loperamide is a medication used to reduce symptoms of diarrhoea by slowing intestinal motility and absorption. This patient is not having issues with diarrhoea, and the most important thing to prescribe here is appropriate antibiotics for her perianal fistula.

Question:

A 55-year-old woman attends the GP surgery as she is worried about her risk of developing ovarian cancer, especially because of the amount of exposure ovarian cancer has received in the news. Which of the following is most associated with the development of ovarian cancer?

A.Early menarche

B.Early menopause

C.Combined oral contraceptive use

D.Multiple pregnancy

E.Low body mass index

Answer:Early menarche

Explanation:

The risk factors for ovarian cancer are hormonal in nature. A woman's risk is greater if ovulation is not suppressed. In this way, early menarche and late menopause, both of which would increase ovulation, are risk factors for ovarian cancer. Hormone replacement therapy (HRT) and obesity, rather than low body weight, are also risk factors.

Pregnancy, which suppresses ovulation, is protective against ovarian cancer as is combined oral contraceptive use.

Ovarian cancer has received a lot of attention in the media, and often patients read about vague symptoms such as bloating being precursors to ovarian cancer. While this is true to an extent, it is important to reassure patients and carry out a thorough history and examination and identify and risk factors.

Question:

You are a Doctor working in a walk-in-centre. Your next patient is a 21-year-old fire-eater in training, who presents with pale pink, painful and blistered burns to both of his palms and the anterior aspect of his right forearm.

He burnt himself approximately 1 hour ago. In this time he had washed the burn under cool water for 20 minutes and a friend had layered his hands and arm in clingfilm.

What is the most appropriate next stage of his treatment?

A.Remove the cling film and apply an emollient

B.Send him home with appropriate analgesia

C.Immerse the burn in cold water for another 30 minutes

D.Admit to secondary care

E.Clean the wound, leaving the blisters intact. Place a non-adherent dressing. Review in 24 hours

Answer:Admit to secondary care

Explanation:

Superficial dermal burns covering >3% TBSA in adults must be referred to secondary care

Important for meLess important

As this burn is described as 'pale pink, painful and blistered' we should presume it is a partial thickness or superficial dermal burn. This used to be called a second degree burn. The palmar surface is roughly equivalent to 1% of total body surface area (TBSA). Wallace's Rule of Nines states that each arm is approximately 9% of TBSA. Therefore this aspiring fire-eater has burnt over 3% of his TBSA.

All superficial dermal burns of more than 3% TBSA in adults, or more than 2% TBSA in children should be referred to secondary care. Superficial dermal burns involving the face, hands, feet, perineum, genitalia, or any flexure, or circumferential burns of the limbs, torso, or neck should also be referred to secondary care.

Question:

A 78-year-old woman presents with a four-hour history of severe dyspnoea. This is present at rest but worse on lying down and with exertion. She was discharged from the coronary care unit three weeks ago following a myocardial infarction.

On examination, she has fine bibasal crepitus and pitting ankle oedema.

Observations:

Pulse: 104 bpm

BP: 126/88 mmHg

Respiratory rate: 28/min

Temperature: 36.8ºC

Oxygen saturations: 92% on room air

Her chest X-ray shows bilateral fluffy opacification with Kerley-B lines.

You make a working diagnosis of acute heart failure and give her 15L high flow oxygen and IV furosemide. A repeat chest X-ray shows no improvement.

What is the next best management step?

A.500ml bolus of IV 0.9% NaCl

B.Continuous positive airway pressure (CPAP)

C.Sodium nitroprusside

D.Bisoprolol

E.Adenosine

Answer:Continuous positive airway pressure (CPAP)

Explanation:

Acute heart failure not responding to treatment - consider CPAP

Important for meLess important

As this woman has failed to respond to initial medical therapy, CPAP is indicated. CPAP in acute heart failure gives significant improvement to haemodynamic status. It increases intrathoracic pressure, reduces venous return to the heart and ultimately reduces preload and pulmonary venous pressure. This reduction in hydrostatic pressure promotes the movement of fluid from the interstitial compartment into the vascular compartment, reducing oedema.

IV fluids are not currently indicated as this patient is normotensive. Giving fluids increases the blood volume, which could potentially increase hydrostatic pressure further and cause increased movement of fluid into the interstitial compartment of the lung, worsening her oedema.

Sodium nitroprusside is a potent vasodilator that NICE state should not be offered to patients with acute heart failure. It may increase the risk of harm in patients with hypotension.

Patients should not be started on beta-blocker therapy until they are stabilised. There is a potential for beta-blockers to cause bradycardia and hypotension, and so these should be withheld until the patient is weaned off IV diuretics.

Adenosine is not used in acute heart failure. It is indicated primarily in the management of SVT refractory to vagal manoeuvres.

Question:

A 32-year-old Sunday league rugby player presents to the emergency department with a painful knee. Upon history taking, she describes feeling a popping sensation in her right knee during the match, and upon clinical examination the knee is swollen, and the patient is unable to fully extend her knee.

Which one of the following tests is most likely to reveal the underlying diagnosis?

Ultrasound scan (US)

18%

Joint aspiration

2%

Plain film radiograph (X-ray)

13%

Magnetic resonance imaging (MRI)

67%

HLA-B27 testing

0%

MRI is the most appropriate imaging modality to diagnose meniscal tears

Important for meLess important

Based on the patient's clinical presentation, a meniscal injury is highly likely. MRI is almost 90% sensitive at detecting lateral and medial meniscal tears. It has a higher sensitivity than the other options listed, and should be requested for all patients with suspected meniscal injury.

Also, ultrasound would prove difficult given the degree of swelling and pain that the patient is likely to be in. An X-ray would be indicated in a patient with concurrent arthritis or a long-standing history of repeated meniscal tears.

Question:

A 27-year-old woman presents to her general practitioner concerned about a lump in her breast. She first noticed it three weeks ago while showering and it is causing her trouble in wearing her bra.

On examination, a 4 cm, firm, non-tethered lump can be felt in the upper left quadrant of the right breast. The contour and surface are smooth, the overlying skin is intact and it does not transilluminate. The doctor refers her for a triple assessment which shows a fibroadenoma.

What is the next treatment in her care?

A.Check the mass again in three months

B.Discharge and safety netting

C.Prescribe oral antibiotics

D.Refer for aspiration

E.Refer for surgical excision

Answer:Refer for surgical excision

Explanation:

Breast fibroadenoma: surgical excision is usual if >3cm

Important for meLess important

The correct answer is refer for surgical excision. This patient is presenting with a breast lump which has the classical feature of a fibroadenoma, a benign mass developing from the whole lobule. They are usually described as 'breast mice' as they are small, firm, smooth masses which are non-tethered to the underlying structures and hence move freely around. They are usually treated conservatively, but they are referred for surgical excision if they are more than 3 cm in size, as in this case, due to discomfort.

Check the mass again in three months is incorrect, as fibroadenomas, especially if diagnosed via triple assessment, very rarely will develop into cancer. The reason for excision is discomfort, which the patient is feeling in this case.

Discharge and safety netting is an incorrect option as the patient is experiencing discomfort due to the mass and hence it should be removed.

Prescribe oral antibiotics is incorrect as this management plan would be implemented in cases of mastitis, an inflammation of the nipple often occurring during breastfeeding. It would present with burning pain and generalised malaise, which are absent in this case.

Refer for aspiration is incorrect as this is the management plan for breast cyst. This would present with a smooth discrete lump which might be fluctuant. But in this case, the triple assessment confirmed a fibroadenoma, making the option incorrect.

Question:

A 68-year-old man is investigated for dysphagia. This has been getting progressively worse for the past 3-4 months. It occurs mostly with foods such as bread and meat and is associated with some odynophagia. He has vomited once after eating. There is no history of weight loss or anorexia. His bowel motions have not changed in terms of consistency or colour. A barium swallow is performed:

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What is the most likely diagnosis?

A.Gastric cancer

B.Achalasia

C.Gastro-oesophageal reflux disease

D.Barrett's oesophagus

E.Oesophageal cancer

Answer:Oesophageal cancer

Explanation:

The barium swallow shows 5cm of irregular narrowing of the mid-thoracic oesophagus with proximal shouldering, consistent with oesophageal cancer.

Question:

A 41-year-old man with a background in polycystic kidney disease is reviewed in the clinic. He has been feeling increasingly fatigued over the past few months and cannot do his usual workout at the gym without becoming very breathless and tired. His blood tests are shown below:

Hb 84 g/L Male: (135-180)

Female: (115 - 160)

Platelets 214 \* 109/L (150 - 400)

WBC 5.6 \* 109/L (4.0 - 11.0)

Urea 9.9 mmol/L (2.0 - 7.0)

Creatinine 301 µmol/L (55 - 120)

Ferritin 14 ng/mL (20 - 230)

Vitamin B12 368 ng/L (200 - 900)

Folate 3.2 nmol/L (> 3.0)

What is the most appropriate next step in his management?

A.Arrange a packed red cell transfusion

B.Start high-dose folate replacement

C.Start oral iron replacement

D.Start treatment with erythropoietin

E.Start hydroxycobalamin replacement

Answer:Start oral iron replacement

Explanation:

Anaemia in CKD: correct iron deficiency before starting erythropoiesis-stimulating agents

Important for meLess important

Chronic kidney disease (CKD) is a common cause of anaemia due to several factors but most significantly the loss of the kidney's production of erythropoietin. Erythropoietin is a cytokine responsible for inducing bone marrow production of erythrocytes (red blood cells). Recombinant erythropoietin can be given to treat CKD-associated anaemia but other factors should be corrected first before giving it. The blood results here indicate low ferritin, suggesting the need for iron supplementation. CKD can cause poor iron absorption and result in a need for supplementation, including regular intravenous infusions for patients receiving dialysis.

A transfusion would be inappropriate at present as his haemoglobin is still above 80 g/L and there is a reversible cause of his anaemia (iron deficiency).

Folate replacement is not required as his folate levels are replete.

Erythropoietin treatment would only be indicated if he remained symptomatically anaemic despite adequate iron replacement.

Hydroxycobalamin is the chemical name for vitamin B12. His vitamin B12 levels are replete so this is not indicated.

Question:

A 52-year-old woman is seen in clinic with a 6-month history of bilateral hand pain and swelling. In the morning, she has 3 hours of stiffness and the pain improves towards the end of the day.

She is afebrile, her pulse is 85 bpm, and her blood pressure is 129/75 mmHg. The metacarpophalangeal joints are tender, and warm, and have erythematous boggy swellings. Her right index finger is swollen.

Her history includes gastroenteritis 5 years ago after which it was found she is allergic to ciprofloxacin and recurrent episodes of nail problems unresponsive to antifungal treatment.

What is the most likely diagnosis?

A.Psoriatic arthritis

B.Reactive arthritis

C.Rheumatoid arthritis

D.Systemic lupus erythematosus

E.Systemic sclerosis

Answer:Psoriatic arthritis

Explanation:

'Rheumatoid'-like joint problems but nail changes → ?psoriatic arthritis

Important for meLess important

The presence of inflammatory-type joint pain and stiffness (prolonged stiffness lasting >30 minutes to hours in the morning and pain and stiffness improving on exertion and worse with rest) presenting bilaterally suggests inflammatory arthropathy such as rheumatoid arthritis (RA), or psoriatic arthritis. The presence of tender, erythematous, boggy swellings suggests synovitis (inflammation of the joints), which supports these diagnoses. RA and psoriatic arthritis can be differentiated based on the presence of skin and/or nail changes, and/or dactylitis.

Psoriatic arthritis is correct. Alongside the inflammatory joint pain as mentioned above, this patient has a swollen finger (dactylitis) and a history of nail problems that are unresponsive to antifungal treatment, making psoriatic arthritis more likely than RA, as RA does not have these features. Around 30-40% of cases of psoriatic arthritis present symmetrically and similarly to RA, and asymmetrical oligoarthritis is seen in fewer patients (around 20-30%). around 10% of patients have the disease affecting the distal interphalangeal joints, therefore it is important to bear in mind different presentations that are less clear-cut. The key differentiating feature between RA and psoriatic arthritis here is the presence of dactylitis and nail problems. Many patients may not know they have psoriasis as their skin problems may be misinterpreted as dandruff or their nail problems misinterpreted as onychomycosis (fungal nail infections).

Reactive arthritis is incorrect. This typically presents as an oligoarthritis (<5 joints) typically affecting weight-bearing joints (e.g. the knee) around 1-6 weeks following a gastrointestinal or urogenital infection. Its features can be remembered using the aide-memoire 'can't see (conjunctivitis), pee (urethritis), or climb a tree (arthritis)'. These features are not seen in this patient and although they did have an episode of gastroenteritis, this was 5 years ago and is unlikely to be the cause of her current presentation.

Rheumatoid arthritis (RA) is incorrect. Although this can present with inflammatory-type joint pain and stiffness as seen in this patient, the presence of dactylitis (swelling of the index finger) makes psoriatic arthritis more likely as these features are not seen in RA.

Systemic lupus erythematosus (SLE) is incorrect. Although this can present with inflammatory-type arthritis, patients have associated features of SLE such as photosensitive skin, a malar 'butterfly-shaped' rash across the face that spares the nasolabial folds, arthralgia, fatigue, and mouth ulcers. These features are not seen in this patient.

Systemic sclerosis (SSc) is incorrect as the main features of SSc are hardened sclerotic skin and sclerosis of other connective tissues including internal organs. This may present with tightened skin over the face and limbs and may have features of CREST syndrome (a subtype of SSc, characterised by Calcinosis, Raynaud's phenomenon, oEsophageal dysmotility, Sclerodactyly, and Telangiectasia). These features are not seen in this patient.

Question:

A 66-year-old woman reports that during the past 6 months she has had several episodes of a sharp, shooting 'electric shock' like pain on the left side of her face, which occur when she is combing her hair.

Given the likely diagnosis which one of the following treatments should be initiated?

A.Sodium valproate

B.Gabapentin

C.Amitriptyline

D.Carbamazepine

E.Diazepam

Answer:Carbamazepine

Explanation:

This woman has symptoms typical of trigeminal neuralgia. The first line treatment for this is carbamazepine, which should be started at 100 mg twice daily and slowly titrated up until pain is relieved.

Question:

A 68-year-old man is brought into the emergency department with acute onset shortness of breath. On arrival at the hospital, he was found to be profoundly hypoxic with oxygen saturations of 65% on air. His past medical history includes Non-Hodgkin's lymphoma for which he is receiving chemotherapy.

Within 2 minutes, he becomes unresponsive with no palpable pulse. Chest compressions are commenced and he is attached to the defibrillator pads. The defibrillator shows a regular broad complex tachyarrhythmia.

What is the next step in the management of this patient?

A.Adrenaline 1mg 1:10000

B.Alteplase

C.Amiodarone 300mg

D.Lidocaine 1mg/kg

E.Unsynchronised shock

Answer:Unsynchronised shock

Explanation:

VF/pulseless VT should be treated with 1 shock as soon as identified

Important for meLess important

Unsynchronised shock is correct. This patient has had a cardiac arrest. The reading on the defibrillator most likely correlates to pulseless ventricular tachycardia (VT), a shockable rhythm. In the ALS algorithm, once a shockable rhythm has been identified, it is important to administer an initial 150J unsynchronised shock.

Adrenaline 1mg 1:10000 is incorrect. This would be the most appropriate next step in the management of this patient if they were having a cardiac arrest with asystole or pulseless electrical activity as the initial rhythm on the defibrillator. However, this patient is in pulseless VT warranting an immediate unsynchronised shock.

Alteplase is incorrect. This is a very important drug to consider given the history of malignancy and the desaturation prior to cardiac arrest as a pulmonary embolism is a likely underlying cause. However, the most appropriate next step for a patient in pulseless VT on the defibrillator is an unsynchronised shock. During the 2 minutes of chest compressions that follow the initial shock, whilst working through the 4H's and 4T's, alteplase can then be considered as a treatment option.

Amiodarone 300mg is incorrect. Although this drug is indicated in the management of a shockable rhythm in the cardiac arrest algorithm, it is not given until after the 3rd shock. Therefore, it is inappropriate to give amiodarone at this point in the cardiac arrest cycle.

Lidocaine 1mg/kg is incorrect. This can be used instead of amiodarone in the management of a shockable rhythm. However, like amiodarone, it is not given until after the 3rd shock making it inappropriate at this stage.

Question:

A group of consultant surgeons are meeting at a symposium. The chef preparing the canapes has an infection on his finger. Approximately 40 minutes after eating the canapes the group are struck down with severe vomiting. What is the most likely underlying explanation for this process?

A.Presence of enterotoxin from Staphylococcus aureus in the food

B.Presence of enterotoxin from Streptococcus pyogenes in the food

C.Infection with Campylobacter jejuni

D.Presence of enterotoxin from Clostridium perfringens in the food

E.Infection with Shigella soneii

Answer:Presence of enterotoxin from Staphylococcus aureus in the food

Explanation:

Staphylococcus aureus may release an enterotoxin, this is preformed and thus will typically result in rapid onset of symptoms in affected individuals.

Question:

A 29-year-old woman presents to the neurology clinic for a follow-up appointment. She has been taking steroids for five days following an acute relapse of her multiple sclerosis, which left her unable to move from her bed.

Today she is feeling better and came to the clinic to enquire about a medication that could help her reduce the frequency of her relapses. Her past medical history is otherwise unremarkable and she is not considering pregnancy soon.

What is the single most efficacious medication that can be given?

A.Amantadine

B.Baclofen

C.Beta-interferon

D.Gabapentin

E.Natalizumab

Answer:Natalizumab

Explanation:

Monoclonal antibodies such as natalizumab have the strongest evidence base for reducing relapse in multiple sclerosis

Important for meLess important

The correct answer is natalizumab , a monoclonal antibody. This class of medication is the most effective in reducing the number of relapses. This drug specifically works by antagonising alpha-4 beta-1-integrin found on the surface of leucocytes, reducing the migration of leukocytes across the blood-brain barrier.

Amantadine is a noncompetitive NMDA antagonist used to treat fatigue in multiple sclerosis patients but does not affect the number of relapses.

Baclofen is a GABA agonist used to manage spasticity in multiple sclerosis patients, but it does not affect the number of relapses.

Beta-interferon has been historically used to reduce the number of attacks, but nowadays it has been proven to be not as effective as alternative disease-modifying drugs.

Gabapentin is used to treat oscillopsia, a symptom of multiple sclerosis where the visual fields appear to oscillate, but it does not affect the number of relapses. Additionally, it can be used to manage neuropathic pain and spasticity.

Question:

A newborn baby is transferred to the neonatal intensive care unit shortly after birth due to respiratory distress. An x-ray taken on arrival is shown below:

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What is the diagnosis?

A.Bronchopulmonary dysplasia

B.Respiratory distress syndrome

C.Left-sided neonatal bronchiectasis

D.Congenital diaphragmatic hernia

E.Left pneumothorax

Answer:Congenital diaphragmatic hernia

Explanation:

Bowel loops can be seen in the left side of the thoracic cavity.

Question:

A 77-year-old woman who lives alone is assessed. She has a history of Alzheimer's disease. Her neighbours are increasingly concerned about her behaviour - they often see her wandering around outside in an apparently confused state. You feel she may need a care package or residential care but she refuses to countenance such a proposal. What is the most appropriate legal framework to use to approach this issue?

A.Mental Health Act

B.Mental Capacity Act

C.Health and Social Care Act

D.Common law

E.Professional Performance Act

Answer:Mental Capacity Act

Explanation:

As this is not a mental health disorder the most appropriate legal framework to use is the Mental Capacity Act.

The Mental Capacity Act of 2005 came into force in 2007. It applies to adults over the age of 16 and sets out who can take decisions if a patient becomes incapacitated (e.g. following a stroke). Mental capacity includes the ability to make decisions affecting daily life, healthcare and financial issues.

The Act contains 5 key principles:

A person must be assumed to have capacity unless it is established that he lacks capacity

A person is not to be treated as unable to make a decision unless all practicable steps to help him to do so have been taken without success

A person is not to be treated as unable to make a decision merely because he makes an unwise decision

An act done, or decision made, under this Act for or on behalf of a person who lacks capacity must be done, or made, in his best interests

Before the act is done, or the decision is made, regard must be had to whether the purpose for which it is needed can be as effectively achieved in a way that is less restrictive of the person's rights and freedom of action

Question:

You are asked to review a 1-hour-old neonate on the delivery suite. They were born via elective Caesarean section. Maternal antenatal history is significant for gestational diabetes. A heel prick test shows the baby's blood glucose is 2.2 mmol/L. What is the next step in management?

A.Give IV 10% Dextrose

B.Give PO Sucralose

C.Take blood cultures

D.Request paediatric registrar review

E.Observe and encourage early feeding

Answer:Observe and encourage early feeding

Explanation:

Transient hypoglycaemia in the first hours after birth is common

Important for meLess important

Babies of mothers with diabetes (gestational or pre-existing) are at increased risk of hypoglycaemia. This is because maternal intrapartum hyperglycaemia stimulates foetal insulin release and neonates lose their continuous supply of maternal glucose after birth.

However, transient hypoglycaemia in the first few hours to days after birth is very common.

This is usually monitored and does not need any intervention or escalation. Mothers should be encouraged to feed their child early and at regular intervals.

For the babies of diabetic mothers, they will be commenced on a hypoglycaemia protocol, which can be stopped once they have at least 3 blood glucose values >2.5 mmol/L and are feeding appropriately.

Question:

David is a 28-year-old man who was diagnosed with alpha1-antitrypsin deficiency after a chronic productive cough, no smoking history and a positive blood test.

When counselling David about his new diagnosis, which of the following would be important to tell him?

A.It solely affects the lungs

B.It can be diagnosed prenatally

C.It is a radiological diagnosis

D.It is most common in those older than 60

E.Alpha1-antitrypsin is made in the kidneys

Answer:It can be diagnosed prenatally

Explanation:

Alpha1-antitrypsin deficiency can be diagnosed prenatally

Important for meLess important

The statement 'It solely affects the lungs' is incorrect as it also can cause severe liver disease.

It is diagnosed using a blood test rather than any radiology.

It is most commonly found in those aged 20-50.

Alpha1-antitrypsin is made in the liver.

Alpha1-antitrypsin deficiency can be diagnosed in the pre-natal period. Therefore it would be important to tell David this as it could affect him and a future partner when trying to start a family.

Question:

A 72-year-old male presents to the general practitioner with progressive dyspnoea, chronic cough and wheeze. He has a 60-pack-year smoking history and a past medical history of atopy and is currently taking a salbutamol inhaler. Spirometry shows a forced expiratory volume over 1 second (FEV1) of 55% predicted and an FEV1/forced vital capacity (FVC) ratio of 0.49. The patient also keeps a peak flow diary, which shows a diurnal variation in readings.

Which of the following is the most appropriate next stage in the management of this patient?

A.Ipratropium and beclomethasone bronchodilator therapy

B.Montelukast and tiotropium bronchodilator therapy

C.Salmeterol and beclomethasone bronchodilator therapy

D.Salmeterol and montelukast bronchodilator therapy

E.Tiotropium and salmeterol bronchodilator therapy

Answer:Salmeterol and beclomethasone bronchodilator therapy

Explanation:

Asthmatic features/features suggesting steroid responsiveness in COPD:

previous diagnosis of asthma or atopy

a higher blood eosinophil count

substantial variation in FEV1 over time (at least 400 ml)

substantial diurnal variation in peak expiratory flow (at least 20%)

Important for meLess important

The correct answer is salmeterol and beclomethasone bronchodilator therapy. This patient has a significant smoking history and is presenting with dyspnoea, chronic cough and wheeze. Spirometry confirms an obstructive picture, confirming a diagnosis of chronic obstructive pulmonary disorder (COPD). As this patient has a history of atopy and shows a diurnal variation in peak flow readings, they have COPD with asthmatic features. Initial management of COPD with asthmatic features is with an inhaled short-acting beta-agonist (SABA), which he is already prescribed. As his symptoms are not controlled with first-line therapy, the next step in managing COPD with asthmatic features is with a long-acting beta-agonist (salmeterol) and an inhaled corticosteroid (beclomethasone).

Ipratropium and beclomethasone bronchodilator therapy is incorrect. While beclometasone is appropriate for this patient, ipratropium is inappropriate. Ipratropium is a short-acting muscarinic-antagonist (SAMA), which is not recommended as short-term relief in COPD with asthmatic features.

Montelukast and tiotropium (LAMA) bronchodilator therapy is incorrect as neither is recommended for COPD with asthmatic features. Tiotropium may however be used for stable management in cases of COPD with no asthmatic features.

Salmeterol and montelukast bronchodilator therapy is incorrect as montelukast is not recommended in COPD with asthmatic features.

Tiotropium and salmeterol bronchodilator therapy is incorrect as tiotropium is not recommended in COPD with asthmatic features.

Question:

A 22-year-old man presents with fatigue and a persistently sore throat for the past two weeks. On examination his temperature is 37.8ºC, pulse 78/min, there is widespread cervical lymphadenopathy and evidence of palatal petechiae. Given the likely diagnosis, which one of the following complications is he at risk from?

A.Subacute sclerosing panencephalitis

B.Splenic rupture

C.Iron-deficiency anaemia

D.Encephalitis

E.Giant cell pneumonia

Answer:Splenic rupture

Explanation:

Glandular fever: avoid contact sports for 4 weeks

Important for meLess important

Question:

A 40-year-old woman attends her follow-up appointment after undergoing a core-needle biopsy of a suspicious breast lump.

The doctor confirms that the biopsy has revealed that the lesion is malignant. On further testing, the cancer is found to be oestrogen receptor-positive and HER2-negative.

It has been decided that the patient will have a wide local excision and radiotherapy. The patient is currently having regular menstrual periods.

What is the most appropriate additional treatment option?

A.Anastrozole

B.Bilateral oophorectomy

C.Letrozole

D.Tamoxifen

E.Trastuzumab

Answer:Tamoxifen

Explanation:

Tamoxifen is used in the management of oestrogen receptor-positive breast cancer in pre-menopausal women

Important for meLess important

The correct answer is tamoxifen. Tamoxifen is an example of a selective oestrogen receptor modulator, which can be used in the management of oestrogen receptor-positive breast cancer in pre-menopausal women.

Anastrozole is the wrong answer and is an example of an aromatase inhibitor. This hormonal treatment could be used as part of breast cancer management in post-menopausal patients. Due to the patient's age, it would not be a suitable management option unless specifically stated that she was post-menopausal (for example, in premature ovarian insufficiency or oophorectomy).

Bilateral oophorectomy is the wrong answer. Though this could be an option in pre-menopausal women with oestrogen receptor-positive cancer, this is not the most appropriate option as it involves a surgical operation with increased risks and would cause premature menopause and ongoing consequences for the patient.

Letrozole is the wrong answer as it is an example of an aromatase inhibitor. This hormonal treatment could be used as part of breast cancer management in post-menopausal patients. Due to the patient's age, it would not be a suitable management option unless specifically stated that she was post-menopausal (for example, in premature ovarian insufficiency or oophorectomy).

Trastuzumab is the wrong answer. Otherwise known as Herceptin, this is a targeted treatment used in HER2-positive breast cancer. It is not suitable for this patient as the cancer is HER2-negative.

Question:

A 65-year-old lady presents to her GP complaining of sudden onset of pain and paraesthesia in her left leg. On further questioning, she reports that the pain radiates along the posterior thigh and the posterolateral aspect of the leg, to the dorsum of her foot and her large toe. On examination, you identify sensory loss in the dorsum of her left foot and reduced power upon performing dorsiflexion of her left ankle. Her reflexes remain intact and she has a positive left sided straight leg raise test.

Which of the following causes is most likely to be responsible for this presentation?

A.Sciatic neuropathy

B.L5 radiculopathy

C.L4 radiculopathy

D.Femoral neuropathy

E.S1 radiculopathy

Answer:L5 radiculopathy

Explanation:

L5 radiculopathy: Weakness of hip abduction and foot drop, no specific reflex lost

Important for meLess important

An L5 radiculopathy presents with weakness of hip abduction and foot drop, as seen in this patient. It is typically due to a slipped disc compressing the nerve root. It presents with a positive SLR test and as L5 does not provide any reflex loop, reflexes remain intact.

Sciatic neuropathy which is commonly confused with this would cause a loss of the ankle jerk and plantar response and loss of knee flexion and power below the knee. The femoral nerve supplies the anterior thigh rather than the posterior thigh.

L4 radiculopathy would cause reduced knee jerk, whilst S1 would affect the ankle jerk.

Question:

A 25-year-old woman presents to her GP with 2 days of urinary frequency and dysuria, she has tried drinking cranberry juice to improve her symptoms with no effect. Her only past medical history is Chlamydia trachomatis for which she had a test of cure after treatment. She takes the progesterone-only pill and has no known drug allergies. She has a 2 pack-year smoking history and is currently trying to quit before attempting to conceive. She is happy to have a bHCG test but reports she started menstruating this morning.

Her urine dip shows:

pH 6

Leucocytes +

Nitrates ++

Protein -

Blood ++

Ketones -

bHCG negative

What is the most appropriate management for this patient?

Prescribe a five days course of trimethoprim

10%

Prescribe a seven days course of nitrofurantoin

16%

Prescribe a seven days course of trimethoprim

9%

Prescribe a three days course of amoxicillin

2%

Prescribe a three days course of nitrofurantoin

63%

Non-pregnant women with uncomplicated lower UTI only need 3 days of antibiotics

Important for meLess important

This patient is presenting with urinary symptoms and a positive urine dip (leucocytes and nitrates positive). The blood is most likely due to her menstruation. As she is not pregnant and has no recurrent history of UTIs, she should be managed with prescription of a three days course of nitrofurantoin.

It would be inappropriate to prescribe prescribe a three days course of amoxicillin as the first-line antibiotics for UTI for non-pregnant women are trimethoprim or nitrofurantoin. If she was intolerant to these antibiotics or had previous UTIs which had not responded to these antibiotics, it would be worth considering amoxicillin.

There is no instance when a prescription of a five days course of trimethoprim would be advised for management of a UTI. Patients are typically given 3 or 7-day courses of antibiotics with this condition.

Prescription a seven days course of nitrofurantoin should be offered for male patients or patients who are catheterised. In pregnant women with asymptomatic bacteriuria, they should be given 7 days of nitrofurantoin, to reduce the risk of the infection leading to pyelonephritis. As this patient is not pregnant, male, or catheterised, it is an incorrect answer.

Prescription of a seven days course of trimethoprim is an alternative first-line antibiotic option for male patients or patients who are catheterised.

Question:

A 15-year-old boy is diagnosed with glandular fever. What is the most appropriate advice to give regarding playing sports?

A.Can play contact sports as normal

B.Avoid contact sports for 1 week after having glandular fever if clinical evidence of splenomegaly

C.Avoid contact sports for 1 week after having glandular fever

D.Avoid contact sports for 4 weeks after having glandular fever

E.Avoid contact sports for 4 weeks after having glandular fever if clinical evidence of splenomegaly

Answer:Avoid contact sports for 4 weeks after having glandular fever

Explanation:

Glandular fever: avoid contact sports for 4 weeks

Important for meLess important

Clinical examination is not sensitive enough to screen for splenomegaly

Question:

A 72-year-old man presents to his GP complaining of reduced sensation in his lower limbs that has been progressively worsening over the last 3 months. He feels increasingly unsteady on his feet but is otherwise well.

On examination, vibration and pinprick sensation are reduced symmetrically and he has a wide-based ataxic gait. His ankle reflexes are absent however his knee reflexes are brisk.

His past medical history includes hypertension, managed with ramipril, and gastric cancer, which was treated with a sub-total gastrectomy 4 years ago. He has a body mass index of 29.2kg/m² and drinks 10 units of alcohol per week.

What is the most likely cause of this patient’s symptoms?

Subacute combined degeneration of the spinal cord

51%

Diabetes mellitus

16%

Multiple sclerosis

5%

Cerebellar malignancy

10%

Alcoholic polyneuropathy

18%

Gastrectomy may result in vitamin B12 deficiency

Important for meLess important

Loss of vibration sense, ataxia and absent ankle reflexes are suggestive of subacute combined degeneration of the spinal cord stemming from B12 deficiency. B12 deficiency is a known complication of total and sub-total gastrectomy, a consequence of removing of the intrinsic factor secreting cells that reside in the fundus and body of the stomach.

Whilst the patient is overweight, there are no other features that suggest diabetes mellitus might be responsible. His alcohol intake is moderate. There are no features suggestive of malignancy whilst multiple sclerosis would be unusual in an older man.

Question:

A 27-year-old man comes to see you as he has just returned from a beach holiday in Turkey and has noticed pale white patches on his neck and back. They are circular in shape and slightly itchy.

Which one of the following is the most likely diagnosis?

A.Melasma

B.Pityriasis alba

C.Pityriasis versicolor

D.Seborrhoeic dermatitis

E.Erythrasma

Answer:Pityriasis versicolor

Explanation:

Pityriasis versicolor is a superficial cutaneous fungal infection caused by Malassezia furfur which usually presents on the trunk or back and is scaly is appearance.

Melasma is dark skin discoloration which usually occurs in pregnant women and those who are taking oral or patch contraceptives or hormone replacement therapy.

Pityriasis alba is hypopigmentation of the skin which usually occurs in children and young adults. It initially appears as pink scaly patches which later leave pale areas on the skin. This is usually more noticeable on darker skin.

Seborrhoeic dermatitis in adults presents as eczematous type lesions on the sebum-rich areas of the body.

Erythrasma is a skin condition that results in brown, scaly skin patches and is more prevalent in diabetic and obese patients.

Question:

A 57=year-old male presents in the emergency department with a 12-hour history of sudden onset left-sided hearing loss. His hearing loss is accompanied by new onset tinnitus.

He denies any trauma or exposure to loud sounds and feels well in himself. He denies any weight loss, night sweats, or fever. He has no past medical or surgical history. He does not take any medication regularly apart from an over-the-counter vitamin D supplement.

You perform a full cranial nerve examination and note the below findings for assessment of CN VIII (vestibulocochlear nerve):

Weber test Louder in right ear

Rinne test Positive

Following urgent referral to ENT, what is the most appropriate next step in management?

A.High-dose oral cinnarizine

B.High-dose intra-venous dexamethasone

C.High-dose oral prednisolone

D.High-dose intra-tympanic cinnarizine

E.Low-dose oral prednisolone

Answer:High-dose oral prednisolone

Explanation:

Following referral to ENT, patients with sudden-onset sensorineural hearing loss are treated with high-dose oral corticosteroids

Important for meLess important

This vignette shows a patient with sudden-onset sensorineural hearing loss (as indicated by the results of the Rinne and Weber test, please see below).

The majority of sudden-onset sensorineural hearing loss is idiopathic in nature, however it can be attributed to autoimmune conditions (e.g. Behcet's or SLE), infectious causes (e.g. bacterial meningitis, mumps, Lyme's disease), metabolic causes (e.g. diabetes, hypothyroidism), or neoplasm.

The management of sudden-onset sensorineural hearing loss is urgent referral to ENT, high-dose oral corticosteroids, and investigation for causes. There is emerging evidence to support a trial of intra-tympanic dexamethasone as an alternative to high-dose oral prednisolone however this has not formed 'standard' practice protocol yet.

In idiopathic cases, 45% to 65% patients will regain their previous hearing threshold (even without any therapy), however age > 60 years or < 15 years is associated with a poorer outcome. (Byl FM Jr. Sudden hearing loss: eight years' experience and suggested prognostic table. Laryngoscope. 1984).

Vestibulocochlear nerve assessment:

Weber test

Tuning fork placed in the midline of patient's forehead

Normal / equal bilateral loss: no localisation

Conductive hearing loss: localises to the affected ear

Sensorineural hearing loss: localises to the 'better' ear

Rinne test

Place tuning fork on patient's mastoid bone to assess bone conduction

Place tuning fork in front of patient's ear to assess air conduction

Normal or sensorineural hearing loss: air conduction > bone conduction

Conductive hearing loss: bone conduction > air conduction

Normal test is termed 'positive Rinne'

(NB: tuning fork used is 512 Hz).

Question:

A 24-year-old woman presents to you with abdominal bloating and diarrhoea. She has trialled a gluten-free diet which has provided much relief. Coeliac serology was organised and returned negative.

What is the most likely reason for this result?

A.Possible false negative, need to repeat immediately to confirm

B.This patient is unlikely to have coeliac disease and alternative diagnosis should be considered

C.This result is not specific or sensitive and the patient should be referred for small bowel biopsy

D.Patients must eat gluten for at least 2 weeks before they are tested

E.Patients must eat gluten for at least 6 weeks before they are tested

Answer:Patients must eat gluten for at least 6 weeks before they are tested

Explanation:

Patients must eat gluten for at least 6 weeks before they are tested

Important for meLess important

This patient has treated her potential coeliac disease with self-cessation of gluten with good effect. Although the coeliac antibodies have returned negative, this is unreliable as gluten-free diets can lead to false-negative results.

Although this is possibly a false negative, the test should not be repeated immediately to confirm. The patient should start eating gluten for at least 6 weeks prior to being able to confirm the diagnosis. This is important to do because if she has no coeliac disease, it would be quite restrictive to her lifestyle to avoid gluten for no reason.

It may be true that this patient does not have coeliac disease but the fact that she had some typical symptoms which improved with a gluten-free diet makes this answer incorrect. This diagnosis should be ruled out in the first instance and then alternative diagnoses can be sought.

The issue here is not the specificity or the sensitivity of the test result, it is the effect of a gluten-free diet on the test result. Therefore this option is incorrect.

It is true that patients must eat a gluten-free diet, however, 2 weeks is insufficient prior to testing and the guidelines suggest 6 weeks of a diet including gluten prior to reliable testing.

Question:

A 74-year-old female presents to the GP with a 2 week history of increasing weakness of her upper and lower limbs. She also reports dysphagia to solids and liquids. She is currently undergoing chemotherapy for small cell lung cancer. On examination there is weakness of the limbs but this slowly improves with prolonged exertion.

What is the most likely diagnosis?

A.Myasthenia Gravis

B.Dermatomyositis

C.Spinal cord metastases

D.Lambert-Eaton syndrome

E.Side effect of chemotherapy

Answer:Lambert-Eaton syndrome

Explanation:

Lambert Eaton syndrome (LES) is a rare autoimmune disorder in which antibodies are formed against pre-synaptic voltage-gated calcium channels in the neuromuscular junction. A significant proportion of those affected have an underlying malignancy, most commonly small cell lung cancer. It is therefore regarded as a paraneoplastic syndrome.

The weakness from LES typically involves the muscles of the proximal arms and legs. In contrast to myasthenia gravis, the weakness affects the legs more than the arms. This leads to difficulties climbing stairs and rising from a sitting position. Weakness is often relieved temporarily after exertion or physical exercise, in contrast to myasthenia gravis.

Question:

A 62-year-old man of black African descent is seen by the GP for a hypertension review. He already takes amlodipine with good adherence, but ambulatory blood pressure monitoring has shown readings consistently above 150/91mmHg. He also takes atorvastatin for high cholesterol.

What is the most appropriate next step in management?

A.Add losartan in addition to amlodipine

B.Add ramipril in addition to amlodipine

C.Commence diltiazem in addition to amlodipine

D.Commence spironolactone in addition to amlodipine

E.Stop amlodipine and commence ramipril

Answer:Add losartan in addition to amlodipine

Explanation:

For patients of black African or African–Caribbean origin taking a calcium channel blocker for hypertension, if they require a second agent consider an angiotensin receptor blocker in preference to an ACE inhibitor

Important for meLess important

This patient continues to be hypertensive on ambulatory monitoring despite calcium channel blocker monotherapy. As per the NICE treatment algorithm, the next step in management is an ACE inhibitor or angiotensin receptor blocker (ARB). In black African or African-Caribbean patients, ARBs are preferable to ACE inhibitors due to a reduced incidence of cardiovascular events and reduced adverse effects.

As stated above, an ACE inhibitor is a reasonable next step in treatment, but an ARB is preferable in black African or African-Caribbean populations.

Diltiazem is a non-dihydropyridine calcium channel blocker. Although it can be used as a hypertensive agent, it is not recommended to take in addition to amlodipine, dihydropyridine calcium channel blocker, in the context of hypertension.

Spironolactone is indicated in the management of resistant hypertension, which would be persisting hypertension despite triple therapy with a calcium channel blocker, ACE inhibitor or ARB and a thiazide-like diuretic.

Ramipril would be a reasonable choice of antihypertensive to add next for this patient, however, the calcium channel blocker should also be continued if tolerated.

Question:

A 52-year-old male presents to the emergency department (ED) with chest pain radiating down the left arm. His observations show:

Blood pressure 75/40mmHg

Heart rate is 117 beats per minute

Respiratory rate 24/min

Temperature 37.1ºC

Oxygen saturations 96%

On examination, he appears diaphoretic and in a significant amount of discomfort, an ECG reveals new T wave inversion in leads V1-4.

What is the best next step in the management of this patient?

A.Administer a calcium channel blocker

B.Calculate a Global Registry of Acute Coronary Events (GRACE) score and begin medical management with fondaparinux

C.Coronary angiography within 72 hours

D.Immediate coronary angiography with percutaneous coronary intervention

E.Trial of glyceryl trinitrate (GTN) spray and 2 weeks of aspirin 300mg

Answer:Immediate coronary angiography with percutaneous coronary intervention

Explanation:

NSTEMI management: unstable patients should have immediate coronary angiography

Important for meLess important

Immediate coronary angiography should be considered for any unstable patients with unstable angina or non-ST elevation myocardial infarction (NSTEMI).

A Global Registry of Acute Coronary Events (GRACE) score would be useful for a patient presenting with an NSTEMI. It is a score used to risk-stratify patients with acute coronary syndrome (ACS). This helps to prognosticate and guide ongoing management.

Angiography within 72 hours may be appropriate for a stable patient presenting with an NSTEMI.

Calcium channel blockers would be useful in a patient presenting with cocaine-induced vasospasm, not an NSTEMI.

A glyceryl trinitrate (GTN) spray should be used in the initial management of ACS for pain relief, however is not appropriate as definitive management for an unstable patient presenting with an NSTEMI.

Question:

A 38-year-old patient who is undergoing in vitro fertilisation (IVF) for tubal disease presents 4 days after egg retrieval with abdominal discomfort, nausea and vomiting. She has a past medical history of well-controlled Crohn's disease and is currently taking azathioprine maintenance therapy. On examination her abdomen is visibly distended. The most likely diagnosis is:

A.Ruptured ovarian cyst

B.Intestinal obstruction

C.Hyperemesis gravidarum

D.Ovarian hyperstimulation syndrome

E.Pelvic inflammatory disease (PID)

Answer:Ovarian hyperstimulation syndrome

Explanation:

This question concerns complications that may arise during IVF. The most unlikely answer is hyperemesis gravidarum as the patient is not currently pregnant. Given the patient's reason for IVF (tubal disease) - PID may seem like a reasonable answer however it would be likely that this patient would have already been screened for this disease prior to the commencement of IVF and have been appropriately treated. A ruptured cyst would present with a much more acute picture of pain and systemic signs/symptoms. Obstruction may be on a list of differentials considering the patient's past medical history however in the scenario this patient's Crohn's is well-controlled and the patient would present with central colicky pain and bile-stained vomiting. Thus in this scenario ovarian hyperstimulation syndrome is a much more likely diagnosis. This is associated typically with the use of human chorionic gonadotrophin (HCG) in the maturation of follicles during IVF. It presents with lower abdominal discomfort, nausea, vomiting and abdominal distension. Patients may also develop ascites, hypotension and in serious cases acute respiratory distress syndrome and venous thromboembolism. Patients are treated with fluid replacement and thromboprophylaxis.

Note: The actual effect on azathioprine during pregnancy is not fully known - the BNF suggests there are some reports of an association between low birth weight and premature births and exposure to the drug however most physicians would advise women with Crohn's disease that are on maintenance treatment with azathioprine to continue taking this drug as the risk of harm from a flare up of Crohn's disease outweighs the risk of harm of taking this medicine.

Question:

An 86-year-old gentleman comes to see you with his daughter for a medication review. His memory has been declining recently and he was referred to memory clinic three months ago, where he was diagnosed with Alzheimer's dementia.

His other medical history includes chronic back pain secondary to osteoporosis, ischaemic heart disease and atrial fibrillation.

Which one of the following medications should you consider stopping?

A.Amitriptyline

B.Rivaroxaban

C.Atorvastatin

D.Alendronic acid

E.Aspirin

Answer:Amitriptyline

Explanation:

There are multiple causes of dementia as outlined below, the majority of which are progressive and irreversible. There are medications that can be used to slow progression, but as clinicians we also have a responsibility to ensure that our patients aren't taking medications which may make things worse.

The STOPP-START Criteria (Gallagher et al., 2008) outlines medications that we should consider withdrawing in the elderly. One example of this is the use of tricyclic antidepressants in patients with dementia, due to the risk of worsening cognitive impairment.

Question:

A 72-year-old man presents to the GP with a 5-day history of worsening muscle pain and weakness of his arms. He notes no history of trauma or any other symptoms. On examination, he has weakness of his arm and forearm extensors and there is a weakness to abduction (MRC grade 4/5).

He is referred to the emergency department where a creatine kinase is measured. His only past medical history includes late-stage chronic obstructive pulmonary disease and a myocardial infarction 1 months ago.

Creatine kinase 45,000 units/ litre

What is the most likely cause of this mans presentation?

A.Adhesive capsulitis

B.Chronic renal failure

C.Polymyalgia rheumatica

D.Use of a statin following his myocardial infarction

E.Duchenne muscular dystrophy

Answer:Use of a statin following his myocardial infarction

Explanation:

Statins can cause rhabdomyolysis

Important for meLess important

This question is asking about a 72-year-old man presenting with muscle pains and weakness. In this case, the raised creatine kinase and past medical history point towards a statin as the cause of his symptoms. Statins can myalgia and myopathies, but can also go on to cause rhabdomyolysis in serious cases.

If the cause was adhesive capsulitis you would expect the shoulder joint alone to be affected. You would expect pain and stiffness that progressed with a typical freezing phase, frozen phase and then to slowly improve over time. It is also less likely that it would be bilateral as that only occurs in 15% of patients.

Chronic renal failure would be associated with other symptoms such as anorexia, nausea, vomiting and fatigue. It is also unlikely to cause the pain and weakness in his muscles. With a creatine kinase level of 45,000 units/litre, you would expect some symptoms. There is also no risk factors for chronic renal failure.

Polymyalgia rheumatica is another cause of myalgia. It typically affects the shoulders or pelvic girdle. However one of the main features of polymyalgia rheumatica is that the creatine kinase is normal and not raised. In this case, this rules out this answer.

Duchenne muscular dystrophy is a genetic condition affecting men, however, symptoms typically occur between the ages of 1-3 with difficulty walking. However, the average life expectancy for people with DMD is 27 and thus it would not present in this age group.

Question:

You are a GP in a local surgery and the next patient is a 23-year-old type 1 diabetic who is keen to get pregnant. She stopped using the combined oral contraceptive pill (Microgynon) one month ago. Her body mass index is 22 kg/m²and her only medication is her insulin.

Which of the following should you also advise her?

A.Start folic acid 0.4mg immediately

B.Start folic acid 0.4mg once she has a positive pregnancy test

C.Start folic acid 2.5mg immediately

D.Start folic acid 2.5mg once she has a positive pregnancy test

E.Start folic acid 5mg now

Answer:Start folic acid 5mg now

Explanation:

In women at risk of neural tube defects, folic acid should be started before conception

Important for meLess important

Folic acid is important for the prevention of neural tube defects and thus it is advised that all women take the standard dose of 0.4mg folic acid a day pre-conception and continue until 13 weeks. Folic acid is started pre-conception because the neural tube is formed within the first 28 days of an embryo’s development – and thus any defect may already be present if a woman waits until her missed period.

Certain women are at an increased risk of neural tube defects and thus should take an increased dose of 5mg folic acid. Women falling into this category include:

Previous child with NTD

Diabetes mellitus

Women on antiepileptic

Obese (body mass index >30kg/m²)

HIV +ve taking co-trimoxazole

Sickle cell

Question:

A 43-year-old female presents to her general practice with multiple red lesions on her hands. She reports that these have developed over the past 24 hours, are slightly itchy but not painful. There is no involvement of the mucous membranes. Clinical examination reveals:

© Image used on license from DermNet NZ

Which of the following drugs is associated with the development of this skin disorder?

A.Co-amoxiclav

B.Levothyroxine

C.Lithium

D.Prednisolone

E.Tamoxifen

Answer:Co-amoxiclav

Explanation:

The history and clinical examination is typical for erythema multiforme. Note the characteristic circular 'target' lesions on the hands. Erythema multiforme has a rapid onset (typically 24-48 hours), lasts for 1-2 weeks and is usually self-limiting. The most common medications associated with the development of erythema multiforme are aminopenicillins (such as co-amoxiclav), sulfonamides, carbamazepine, allopurinol, NSAIDs and the oral contraceptive pill.

Levothyroxine is not associated with the development of erythema multiforme.

Lithium has not been associated with erythema multiforme.

Prednisolone has not been linked to the development of erythema multiforme and may be used to treat it in some situations.

Tamoxifen has not been found to be associated with erythema multiforme.

Question:

A 44-year-old man presents to the emergency department with a 24 hour history of haematemesis and haematochezia. The patient has known alcohol-related liver cirrhosis.

The patient is alert, pale and clammy. His observations show a heart rate of 132/min, blood pressure of 85/45 mmHg, oxygen saturation of 97% on room air and a respiratory rate of 17/min. Physical examination shows hepatomegaly and no other significant findings are noted.

Once the patient is haemodynamically stable, the patient is sent for endoscopy as you suspect variceal haemorrhage.

What must be administered before endoscopy?

A.Adrenaline

B.Adrenaline + IV antibiotic

C.Octreotide

D.Terlipressin

E.Terlipressin + IV antibiotic

Answer:Terlipressin + IV antibiotic

Explanation:

Antibiotic prophylaxis reduces mortality in cirrhotic patients with gastrointestinal bleeding

Important for meLess important

Terlipressin + IV antibiotic is the correct option, as this is suggested by the NICE guidelines. Terlipressin is an antidiuretic hormone analogue, making it a vasoconstrictive agent which increases blood pressure. It is licensed for use in variceal haemorrhage and IV prophylactic antibiotics can prevent infection and improve mortality in cirrhotic patients.

Adrenaline is incorrect, as although it is a vasoconstrictive agent, terlipressin is the NICE agent of choice for variceal haemorrhage based on evidence.

Adrenaline + IV antibiotic is incorrect, as terlipressin is the vasoactive agent suggested for variceal haemorrhage based on evidence.

Octreotide is incorrect, as although it exhibits vasoactive effects, it is not the first line in the management. IV antibiotic prophylaxis is also required in the management, however, octreotide can be used in the management of variceal haemorrhage in the place of terlipressin in certain cases.

Terlipressin alone is incorrect, as even if it is licensed for use in the management of variceal haemorrhage, IV antibiotic prophylaxis is required.

Question:

A 56-year-old male present to the GP practice complaining of a 2 month history of intermittent sweating, flushing, nausea and diarrhoea. He also reports feeling increasingly breathless, even at rest. He has never smoked.

On examination, he has no lymphadenopathy, and an audible polyphonic wheeze is heard throughout both lungs. His ankles do not display pitting oedema. On general inspection, he appears to have gained weight, and his face appears rounder compared to when you last saw him 2 years previously. He also has multiple unexplained bruises on his arms and legs.

His blood tests are shown below:

Na+ 149 mmol/L (135 - 145)

K+ 3.1 mmol/L (3.5 - 5.0)

Bicarbonate 24 mmol/L (22 - 29)

Urea 3.5 mmol/L (2.0 - 7.0)

Creatinine 101 µmol/L (55 - 120)

Fasting glucose 16 mmol/L (3.5 - 5.5)

What is the most likely underlying diagnosis?

A.Adenocarcinoma of the lung

B.Asthma with chronic steroid use

C.Carcinoid tumour of the lung

D.Congestive cardiac failure

E.Small cell carcinoma of the lung

Answer:Carcinoid tumour of the lung

Explanation:

Carcinoid tumours can also secrete pituitary hormones, such as ACTH

Important for meLess important

This patient has cardinal symptoms of a carcinoid tumour. The bradykinin and serotonin secreted by these tumours classically produces symptoms of flushing, diarrhoea and bronchoconstriction. These tumours can also secrete other hormones, such as adrenocorticotropic hormone (ACTH), responsible for acting upon the adrenal glands to secrete cortisol. It is for this reason that he has some classic 'Cushingoid' features, including moon-face, central fat accumulation and bruising. Cortisol also increases glucose mobilisation by stimulating gluconeogenesis, and can act as a mineralocorticoid at high concentrations, causing an hypokalaemia and hypernatraemia. Smoking is unrelated to the risk of developing carcinoid tumours.

Option 1 - This cancer is also unrelated to smoking, but more commonly causes clubbing and gynaecomastia, rather than flushing and diarrhoea.

Option 2 - Asthma is a possibility with the wheeze, but adult-onset asthma is relatively rare (you should think about eosinophilic granulomatosis with polyangiitis in these cases!) Oral steroid use to manage asthma can cause Cushingoid features, which is much rarer when taken via the inhaled route.

Option 4 - Congestive cardiac failure can present with a 'cardiac' wheeze and increased weight due to fluid retention. It can also be caused by carcinoid syndrome as the hormones released by these tumours damage the right-sided valves of the heart. However, the question stem points away from this by mentioning a lack of pitting oedema, and Cushing's syndrome is more classically described here.

Option 5 - Small cell lung cancer can also produce ACTH, but the other symptoms this gentleman is experiencing point more towards carcinoid syndrome. This patient has never smoked, and carcinoid tumours are unlinked to smoking, as opposed to small cell tumours which are highly associated.

Question:

A 48-year-old woman attends her annual diabetic screening with the local practice nurse. The patient reports feeling generally fit and well, and has been actively trying to lose weight and increase exercise levels. She reports good coherence with prescribed medications. QRISK2 score = 8.2%.

Past medical history includes type 2 diabetes mellitus and hypertension. Current medications include metformin 1g BD and ramipril 10mg OD.

A blood test is performed.

HbA1c 58 mmol/mol (7.5%)

How should glycaemic control be managed?

A.Add additional dose of metformin at lunch

B.Add novorapid PRN titrated to blood glucose level

C.Add sitagliptin

D.Change to modified-release metformin BD

E.Continue with current treatment and repeat HbA1c in 3 months

Answer:Add sitagliptin

Explanation:

T2DM on metformin, if HbA1c has risen to 58 mmol/mol then one of the following should be offered depending on the individual clinical scenario:

DPP-4 inhibitor

pioglitazone

sulfonylurea

SGLT-2 inhibitor (if NICE criteria met)

Important for meLess important

This scenario describes a 48-year-old woman attending an annual diabetic review and having a raised HbA1c despite good coherence with metformin. As the HbA1c is ≥7.5% (58 mmol/mol) on single glycaemic agent therapy, drug treatment should be intensified. As the patient is already having a maximum daily dose of metformin, the patient may be started on either a DPP-4 inhibitor, pioglitazone, sulfonylurea, or an SGLT-2 inhibitor. The choice of medication depends on their individual preferences, co-morbidities, and alignment with NICE criteria. Given the above, the single best answer is, therefore, add sitagliptin, a drug belonging to the DPP-4 inhibitor class.

Add additional dose of metformin at lunch is not correct. The patient is already on 1g BD of metformin, meaning that they are receiving the maximum daily dose. Instead given the raised HbA1c results, the patient should be started on a second hypoglycaemic agent.

Add novorapid PRN titrated to blood glucose level is incorrect. Whilst insulin therapy may be used in advanced type 2 diabetes mellitus, the next stepwise approach to this patient's care should first include the introduction of a second hypoglycaemic agent - including a DPP-4 inhibitor, pioglitazone, sulfonylurea, or SGLT-2 inhibitor (if criteria are met).

Change to modified-release metformin BD is not correct. Given the patient's raised HbA1c result on 1g metformin BD, the patient should have intensified drug therapy. Modified-release metformin is typically only used for patients who cannot tolerate normal metformin due to gastrointestinal side effects.

Continue with current treatment and repeat HbA1c in 3 months is incorrect. The patient's HbA1c level is above the threshold requiring intensification of drug therapy.

Question:

Which one of the following complications is most associated with psoralen + ultraviolet A light (PUVA) therapy?

A.Squamous cell cancer

B.Osteoporosis

C.Basal cell cancer

D.Dermoid cysts

E.Malignant melanoma

Answer:Squamous cell cancer

Explanation:

The most significant complication of PUVA therapy for psoriasis is squamous cell skin cancer.

Question:

You get bleeped in the middle of your night shift to talk to a worried father whose daughter has been admitted with cyanosis. He tells you that they were aware she has had a murmur since birth, but it has only been the last few days in which she has had symptoms. You believe that this is a case of Eisenmenger's syndrome.

What is the medical definition of Eisenmenger's syndrome?

A.The reversal of a right-to-left shunt

B.An audible ventricular septal defect

C.Presence of a ventricular septal defect alongside an atrial septal defect

D.The reversal of a left-to-right shunt

E.All four of the following: overriding aorta, pulmonary stenosis, right ventricular hypertrophy, ventricular septal defect

Answer:The reversal of a left-to-right shunt

Explanation:

Eisenmenger's syndrome - the reversal of a left-to-right shunt

Important for meLess important

Eisenmenger's syndrome is the reversal of left-to-right shunt associated with ventricular septal defects, atrial septal defect and a patent ductus arteriosus.

Question:

A 9-year-old boy is brought to the emergency department by ambulance. For approximately 24 hours he has had nausea and vomiting. However, he has now developed acute abdominal pain and when he arrives in the emergency department his breathing is noted to deep and laboured. He is usually fit and well and is not prescribed any medication. Blood results show the following:

Na+ 130 mmol/l

K+ 4.5 mmol/l

HCO3- 14 mmol/l

What is the most likely cause?

A.Sepsis

B.Rotavirus

C.Intestinal obstruction

D.Meningitis

E.Diabetic ketoacidosis

Answer:Diabetic ketoacidosis

Explanation:

The patient in this scenario has developed diabetic ketoacidosis (DKA). The important pieces of information to consider when answering this question are his acute presentation and the blood results.

This patient has presented to the emergency department with nausea, vomiting and acute abdominal pain. These are all symptoms of diabetic ketoacidosis. Furthermore, the laboured, deep breathing that is mentioned is Kussmaul's breathing, which is witnessed in DKA and metabolic acidosis. Kussmaul's breathing occurs whereby excess CO2 is exhaled as a compensatory mechanism for an increased blood pH. The recognition of Kussmaul breathing in this question is one of the major factors in getting this question correct, as you would not expect to see this phenomenon in the other 4 possible answers.

The blood results are concurrent with a diagnosis of DKA. Bloods will often show a hyponatraemia, low bicarbonate and a hypokalaemia in severe cases. The low bicarbonate in this question gives the indication that there is an acidosis in this patient, which helps in deriving the correct answer.

Taking into account all other answers, they each could explain some of the symptoms of this child. However, the low bicarbonate, his symptoms and Kussmaul's respirations should lead to a working diagnosis of diabetic ketoacidosis in this patient.

Question:

A 92-year-old man is brought to the emergency department following a fall the previous night. He was on the floor until this morning as he was unable to get up until his carer came in and found him. The patient seems confused and weak. You measure his creatinine kinase and find it to be 14,000 units/L.

What is the most important treatment for this patient?

A.IV Hartmann's solution

B.IV normal saline

C.Mannitol

D.Statin therapy

E.Thromboprophylaxis

Answer:IV normal saline

Explanation:

The mainstay of rhabdomyolysis treatment is rapid IV fluid rehydration

Important for meLess important

This patient is suffering from rhabdomyolysis following a long lie resulting in muscle breakdown. The most important treatment for this patient is rehydration to properly perfuse the kidneys and limit damage to the kidneys due to myoglobin.

IV Hartmann's may be used in this situation but is less appropriate than normal saline due to the potassium content. Rhabdomyolysis causes AKI and electrolyte disturbance and Hartmann's has been shown to worsen this in some cases.

Mannitol has been suggested for use in rhabdomyolysis as a diuretic but this is contentious and should not be used until after rehydration.

Statins may themselves cause rhabdomyolysis so are not indicated in this instance.

This patient may need thromboprophylaxis if he remains immobile for some time but at this point it is not indicated.

Question:

A 73-year-old man presents to the emergency department with a left-sided facial droop. On cranial nerve testing, when testing the facial muscles, he is unable to smile on the left side but can close his eyes, raises his eyebrows and wrinkle his forehead.

Where is the lesion located which has caused this particular facial nerve palsy?

A.Left lower motor neuron

B.Left upper motor neuron

C.Right lower motor neuron

D.Right upper motor neuron

E.Zygomatic branch of the facial nerve

Answer:Right upper motor neuron

Explanation:

A facial palsy caused by an upper motor neuron lesion 'spares' the upper face i.e. forehead

Important for meLess important

If there is a weakness to one side of the face with forehead sparing, this is typically caused by an upper motor neuron lesion of the facial nerve contralateral to the side in which the weakness is found. This is usually caused by a stroke, brain bleed, or brain tumour.

Lower motor neuron lesions of the facial nerve do not cause forehead sparing and are usually found in Bell's palsy (ipsilateral symptoms will be present) and is therefore not the correct answer.

A left upper motor neuron lesion would cause right-sided facial weakness with forehead sparing and is therefore incorrect.

The zygomatic nerve supplies orbicularis oculi, responsible for eye closure, meaning a deficit would not affect lower facial muscles.

Question:

A 41-year-old female undergoes a cervical smear at her GP practice as part of the UK cervical screening programme.

Her result comes back as an 'inadequate sample'.

What is the most appropriate action?

A.Colposcopy

B.Return to normal recall

C.Repeat the test within 1 month

D.Repeat the test within 3 months

E.Repeat the test within 6 months

Answer:Repeat the test within 3 months

Explanation:

Cervical cancer screening: if smear inadequate then repeat within 3 months

Important for meLess important

Cervical smear tests performed as part of the NHS cervical screening programme should first be tested for high-risk HPV (hrHPV). If the first test is an inadequate sample, it should be repeated in 3 months time. Therefore, the correct answer, in this case, is to repeat the test within 3 months.

There is no indication to perform colposcopy in this case. However, if the second sample also returns as inadequate then colposcopy should be performed.

Returning this patient to normal recall would lead to a repeat smear test in 3 years time. This is too much of a delay as a diagnosis of cervical cancer could be missed.

Repeating the test in 1 month is too soon; current guidelines recommend repeating the test in 3 months.

Repeating the test in 6 months is not concordant with current guidelines; it should be repeated in 3 months.

Question:

Bill is a 65-year-old man who presents to his GP with painless swelling of lymph nodes in his left armpit. On further questioning, he admits to feeling hot at night and says he has lost some weight. He has a background of Sjogrens syndrome and is on hydroxychloroquine. On examination, you can feel a 3cm rubbery lump in his left axilla. There are no other palpable lumps anywhere else. His observations are normal.

What is the most likely diagnosis?

A.Lymphoma

B.Breast cancer

C.Tuberculosis

D.Hidradenitis suppurativa

E.Folliculitis

Answer:Lymphoma

Explanation:

Patients with Sjogren's syndrome have an increased risk of lymphoid malignancies

Important for meLess important

The weight loss, night sweats and painless swelling make a diagnosis of lymphoma likely. In addition, patients with Sjogren's syndrome have an increased risk of lymphoid malignancies.

The fact that this is a male patient as well as the absence of a breast lump makes a diagnosis of breast cancer very unlikely.

TB of the lymph glands is normally localised to the cervical chains or supraclavicular fossa. In addition, it is often bilateral.

Hidradenitis suppurativa is a condition that can lead to painful abscesses forming in the axilla. As these lumps are painless, this diagnosis is unlikely.

Folliculitis is inflammation of the hair follicle. It usually causes a tender boil with a pustule at the surface.

Question:

A 74-year-old female presents with weight loss and heat intolerance.She is on multiple medications for atrial fibrillation, ischaemic heart disease and rheumatoid arthritis. You request thyroid function tests which are shown in the table below:

Thyroid stimulating hormone (TSH) 0.2 mU/L

Free T4 35 pmol/L

Which of the following is most likely to be responsible for these results?

A.Prednisolone

B.Atorvastatin

C.Methotrexate

D.Digoxin

E.Amiodarone

Answer:Amiodarone

Explanation:

Amiodarone frequently causes abnormalities in thyroid function tests and may cause both hypothyroidism and hyperthyroidism.

It may cause the former by interfering with the conversion of thyroxine (T4) to tri-iodothyronine (T3) and it may produce the latter either through thyroiditis or donation of iodine (amiodarone contains a large quantity of iodine).

Other side effects of amiodarone include pulmonary fibrosis, corneal deposits, photosensitivity reactions and derangement in liver function tests.

Question:

A 45-year-old man presents with ear pain. The pain has been present for two weeks and the patient finds it is worse when swimming. These symptoms have never been present before, and the patient has no significant past medical history. This morning the patient noticed some green discharge from his ear, prompting him to present to the hospital.

On examination, there is erythema around the ear canal and green discharge present. The patient has no jaw tenderness or fever, and there are no masses or swellings palpable around the ear.

What is the most appropriate first-line treatment?

A.CT scan and subsequent surgical intervention

B.Oral antibiotics

C.Oral antifungals

D.Topical antibiotics

E.Topical antifungals

Answer:Topical antibiotics

Explanation:

Topical antibiotics with or without steroid are first line treatment in otitis externa

Important for meLess important

This patient likely has uncomplicated otitis externa presenting with ear pain and purulent discharge, for which topical antibiotics are the first-line treatment. The absence of jaw tenderness, fever, and mass around the ear make mastoiditis unlikely.

CT scan with surgical intervention is not warranted in this patient with no systemic signs of infection or mastoiditis. Surgical intervention is needed in malignant otitis externa when medical treatment with antibiotics fails, as it can cause severe complications if not treated urgently.

Furthermore, oral antibiotics are not required in this patient who has isolated, uncomplicated otitis externa. First-line treatment for this condition is topical antibiotics. Oral antibiotics are reserved for cases where malignant otitis externa infiltrates into the bone and causes mastoiditis.

In otitis externa, fungal causes are usually only present in immunosuppressed individuals or those previously treated with topical antibiotics. Thus, oral antifungals are unlikely to be helpful in this patient.

Similarly, topical antifungals are also unlikely to be helpful in this case as this patient's otitis externa is unlikely to be fungal.

Question:

A 49-year-old woman complains of 'spots' on her cheeks. She has tried using her daughter's 'Clearasil' but this has had no effect.

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What is the most likely diagnosis?

Seborrhoeic dermatitis

4%

Systemic lupus erythematous

5%

Perioral dermatitis

1%

Late-onset acne vulgaris

6%

Acne rosacea

84%

Rosacea features:

nose, cheeks and forehead

flushing, erythema, telangiectasia → papules and pustules

Important for meLess important

Perioral dermatitis is a differential diagnosis but it does not commonly affect the cheeks.

Question:

A 50-year-old man develops chronic, severe pain after sustaining a brachial plexus injury as a result of motorbike accident. He has had no benefit from paracetamol or ibuprofen. Following recent NICE guidelines, what is the most appropriate medication to consider?

A.Sertraline

B.Topical lidocaine

C.Carbamazepine

D.Pregabalin

E.Buprenorphine

Answer:Pregabalin

Explanation:

Question:

A 50-year-old man presents to general practice complaining of facial flushing. This has previously been transiently triggered by stress or spicy food, but his symptoms have become constant over the past week.

On examination, there is erythema over the nose and cheeks with minimal telangiectasia. The skin is not tense and the patient is systemically well. He has a past medical history of hypertension but nil else.

Given the likely diagnosis, what is the most appropriate first-line treatment?

A.Brimonidine gel

B.Lifestyle advice only

C.Topical ivermectin

D.Topical ivermectin and oral doxycycline

E.Topical metronidazole

Answer:Brimonidine gel

Explanation:

For patients with rosacea with predominant flushing but limited telangiectasia, consider prescribing brimonidine gel

Important for meLess important

The correct answer is brimonidine gel. This patient is presenting with erythema and telangiectasia of the nose and cheeks, initially brought on by stressors such as emotional stress but now becoming constant. These signs and symptoms are suggestive of rosacea (sometimes called acne rosacea). There are no papules, pustules or rhinophyma, therefore the case is not very severe. The first line management, in this case, would be to prescribe topical brimonidine gel once daily.

Lifestyle advice only would be incorrect in this case. This patient is presenting with rosacea. Lifestyle advice for patients with rosacea includes avoiding triggers such as spicy food and advising about sun protection. Initially, lifestyle advice may be helpful for this patient, however, his symptoms now occur regardless of exacerbating factors and so it is appropriate to provide topical therapy.

Topical ivermectin is incorrect. This patient is presenting with rosacea with erythema and telangiectasia. Topical ivermectin can be used in more advanced rosacea with mild papules and pustules.

Topical ivermectin and oral doxycycline is incorrect. This patient is presenting with rosacea with erythema and telangiectasia. Combined ivermectin and doxycycline can be used in more advanced disease with severe inflammatory changes such as pustules, papules and rhinophyma.

Topical metronidazole is incorrect. This patient is presenting with rosacea with erythema and telangiectasia. Topical metronidazole can be used as a second-line agent after topical ivermectin for disease with mild pustules and papules.

Question:

You are seeing a 35-year-old male in the emergency department who was involved in a road traffic accident. He has been successfully stabilised by the trauma team.

His records show that he is under the local oncology team following a recent diagnosis of Hodgkin's lymphoma stage 1B. His records also mention that he is cytomegalovirus (CMV) IgG positive but IgM negative. He has no known allergies.

Blood tests revealed a haemoglobin level of 68 g/L and it has been decided that he requires a blood transfusion.

What modification is most important when ordering blood products for this patient?

A.CMV-seronegative red cells

B.Irradiation

C.Leucocyte depletion

D.Washed red cells

E.Whole blood

Answer:Irradiation

Explanation:

Irradiated blood products are used to avoid transfusion-associated graft versus host disease

Important for meLess important

Cytomegalovirus (CMV)-seronegative red cells: this patient's blood results suggest a previous infection by CMV (IgG positive and IgM negative). Therefore, CMV-negative products are not normally given to such patients. Furthermore, routine leucocyte depletion in the UK makes CMV transmission via blood unlikely.

Irradiation: all patients with Hodgkin's lymphoma (regardless of disease stage) must be given irradiated blood products to prevent transfusion-associated graft versus host disease (taGVHD), for the rest of their life. Irradiated blood destroys all nucleated cells (such as leucocytes), therefore, eliminating the risk of taGVHD.

Leucocyte depletion: since 1999, all allogenic blood components in the UK must be subjected to a leucocyte depletion process. The UK definition of leucodepletion is as follows (taken from the Joint United Kingdom (UK) Blood Transfusion and Tissue Transplantation Services Professional Advisory Committee):

'UK specification for leucodepletion is that more than 90% of leucocyte-depleted components from relevant processes should have less than 1 × 106 leucocytes and more than 99% of components should contain less than 5 × 106 leucocytes, both with 95% confidence'.

Therefore, this is inadequate to prevent the life-threatening risk of taGVHD.

Washed red cells: red blood cells are washed to reduce the presence of plasma proteins, including anti-IgA that can cause anaphylactic reactions in susceptible individuals. It does little in the way of depleting leucocytes and preventing taGVHD.

Whole blood: this is useful for trauma settings associated with major bleeding. However, giving such a transfusion to a patient with Hodgkin's lymphoma carries the risk of life-threatening taGVHD and, therefore, should not be used.

Question:

A 56-year-old gentleman is brought in by paramedics. The patient fainted this morning and has not regained consciousness. No injuries reported from his faint. On examination his heart rate is 37 beats/minute, respiratory rate is 16 breaths/minute, blood pressure is 105/70 mmHg. You order an ECG:

The ECG shows prolonged PR interval.

What would be the initial management?

A.IV atropine

B.IV adenosine

C.External pacing

D.IM adrenaline

E.Oral atropine

Answer:IV atropine

Explanation:

Symptomatic bradycardia is treated with atropine

Important for meLess important

This patient is suffering from bradycardia with adverse features (syncope) likely due to his first degree heart block (prolonged PR interval). Adverse features of bradycardia are shock, myocardial ischemia, heart failure and syncope. The initial treatment is IV atropine.

IV adenosine is not used in bradycardia, it is used in supraventricular tachycardias.

External pacing is only used if there is no improvement after six doses of atropine.

IM adrenaline is indicated for anaphylaxis

Oral atropine is only indicated for GI disorders caused by smooth muscle spasms.

Question:

A 34-year-old pregnant woman comes to see you in clinic today concerned as her brother's son has just been diagnosed with rubella. She is 9 weeks pregnant and is unsure of her rubella status.

What is the most appropriate first step to take at this stage?

A.Reassure her that there is no risk of transmission in this case

B.Give MMR vaccine immediately

C.Discuss immediately with the local Health Protection Unit

D.Reassure her that while she may have contracted rubella there is no risk to her baby

E.Admit to hospital urgently

Answer:Discuss immediately with the local Health Protection Unit

Explanation:

Suspected cases of rubella in pregnancy should be discussed with the local Health Protection Unit

Important for meLess important

If you are suspecting a case of rubella in pregnancy then this should be discussed with the local Health Protection Unit immediately as they can advise on which type of investigations to perform in each individual case.

Guidelines currently recommend that the MMR vaccine is given in the post-natal period if the mother is non-immune to rubella. It is unclear whether there is a risk of transmission in this case. If transmission has occurred, especially at this stage of pregnancy, there is a high risk of damage to the fetus. There is no indication for urgent hospital admission at this stage.

Question:

A 48-year-old woman is admitted to the acute medical unit with sudden-onset dizziness, which she describes as the room spinning around. The dizziness is persistent and does not settle with rest. It is associated with severe nausea and vomiting. She also complains of hearing loss in her left ear. Other than a recent cough and coryza episode, she has been well with no past medical history.

On examination, Rinne’s test shows air conduction is greater than bone conduction in both ears. Weber’s test lateralises to her right ear. She has a normal range of eye movements with mild horizontal nystagmus on lateral gaze. Her coordination is intact.

What is the most likely diagnosis?

A.Benign paroxysmal positional vertigo

B.Cholesteatoma

C.Labyrinthitis

D.Meniere’s disease

E.Vestibular neuritis

Answer:Labyrinthitis

Explanation:

Viral labyrinthitis stereotypical history: recently developed an upper respiratory tract infection presents with vertigo and vomiting. Hearing is also affected. The symptoms came on suddenly

Important for meLess important

This woman has a left sensorineural hearing loss and prolonged vertigo following a viral illness. The most likely cause of this is labyrinthitis, a viral inner ear infection. Vertigo in labyrinthitis comes on acutely and tends to be more prolonged and persistent in the first few days before it begins to ease. In some cases, rest cannot take away the sensation of vertigo. Given the history of a recent viral infection, viral labyrinthitis is the most likely answer.

Vestibular neuritis is inflammation of the vestibular nerve. It presents very similarly to labyrinthitis. However, hearing loss is not a feature of vestibular neuritis, making labyrinthitis the correct option.

Meniere’s disease typically presents as a triad of tinnitus, vertigo and sensorineural hearing loss. Vertigo tends to last for minutes-hours at a time, and the disease follows a relapsing and remitting course. A sensation of fullness in the ear is also a common feature.

Benign paroxysmal positional vertigo (BPPV) is classically characterised by sudden attacks of vertigo of brief duration (< 30 seconds) brought on by changes in position. Common symptoms include sudden onset of vertigo whilst turning in bed or sitting upright. It is a common condition and becomes more common in middle-age. However, sensorineural hearing loss and prolonged vertigo are not features of BPPV, making it a less likely diagnosis.

A cholesteatoma is a growth of keratinised epithelium in the middle ear. It commonly presents with conductive hearing loss and discharge from the affected ear. In later stages of the disease, a disturbance in balance and vertigo can present. However, this suggests that the cholesteatoma has invaded the inner ear.

Question:

A 38-year-old man was admitted to the surgical receiving unit by his GP with sudden onset epigastric pain. His is a known alcoholic and is also overweight, but has no other past medical history. He has severe nausea and vomiting, unable to tolerate any food or drink.

His blood results come back as below:

Hb 154 g/L Male: (135-180)

Female: (115-160)

Platelets 290 \* 109/L (150 - 400)

WBC 27.8 \* 109/L (4.0 - 11.0)

Na+ 140 mmol/L (135 - 145)

K+ 3.8 mmol/L (3.5 - 5.0)

Adj Ca2+ 1.8mmol/L (2.2 - 2.6)

Urea 9.1 mmol/L (2.0 - 7.0)

Creatinine 102 µmol/L (55 - 120)

CRP 13 mg/L (< 5)

ALP 74 U/L (30-130)

ALT 27 U/L (<41)

Bilirubin 12 µmol/L (<21)

Which differential is most likely to account for his abnormal results?

A.Acute pancreatitis

B.Alcoholic liver disease

C.Peptic ulcer

D.Ruptured abdominal aortic aneurysm

E.Spontaneous bacterial peritonitis

Answer:Acute pancreatitis

Explanation:

Acute pancreatitis may cause hypocalcemia

Important for meLess important

Acute pancreatitis is the most likely diagnosis as it is the most likely to result in a hypocalcaemia. It can also can a raised WBC and CRP due to the inflammatory process.

Alcoholic liver disease is unlikely as the LFTs are normal and this would not account for the hypocalcaemia. It would also be unlikely to present in such an acute manner.

Peptic ulcers can also cause epigastric pain however would not account for the hypocalcaemia or such raised inflammatory markers.

Ruptured abdominal aortic aneurysm may present with sudden onset epigastric pain radiating to the back and is important to consider. However it would be accompanied by a low haemoglobin and would not normally cause hypocalcaemia.

Spontaneous bacterial peritonitis occurs as a complication of liver cirrhosis and would cause raised white cells however it would be unlikely with normal LFTs and hypocalcaemia is not a typically presentation of this.

Question:

A 56-year-old woman has been diagnosed with ovarian cancer. She has had a positive CA125 blood test, ultrasound scan and CT abdomen and pelvis. She is found to have stage 2 ovarian cancer. What is the primary treatment?

A.Chemotherapy

B.Radiotherapy

C.Surgical excision of the tumour

D.Hormone therapy

E.Biological therapy

Answer:Surgical excision of the tumour

Explanation:

Ovarian cancers which are stage 2-4, are treated primarily by surgical excision of the tumour. This may be accompanied by chemotherapy. NICE CG122

Question:

A 65-year-old woman with a history of glaucoma has come to the emergency department after a sudden blurring and subsequent loss of vision in her right eye. She didn't experience any pain or discharge.

On fundoscopy there are extensive flame haemorrhages and cotton wool spots. On examination there is a relative afferent pupillary defect (RAPD).

What is the most likely diagnosis?

A.Amaurosis fugax

B.Central retinal artery occlusion (CRAO)

C.Central retinal vein occlusion (CRVO)

D.Lens subluxation

E.Retinal detachment

Answer:Central retinal vein occlusion (CRVO)

Explanation:

Central retinal vein occlusion - sudden painless loss of vision, severe retinal haemorrhages on fundoscopy

Important for meLess important

A history of glaucoma, sudden, painless vision loss, retinal haemorrhages and RAPD all suggest central retinal vein occlusion. This is an ocular emergency and requires immediate ophthalmological intervention.

Amaurosis fugax is sudden, painless vision loss lasting for seconds to minutes and resolving spontaneously. It is often an indicator of underlying vascular disease.

Central retinal artery occlusion also presents with sudden, painless vision loss, described as a descending curtain. RAPD is also present but on fundoscopy you will see a pale retina with a cherry-red spot at the fovea centralis as well as atheromatous plaques.

Lens subluxation is often due to trauma and doesn't present with severe vision loss or acuity changes unless severe.

Retinal detachment can present with sudden, painless vision loss similar to CRAO ('descending curtain') but patients often report floaters and flashes of light preceding this. Retinal tears are also often visible on fundoscopy without haemorrhages or cotton wool spots.

Question:

A 55-year-old man is seen in the rheumatology clinic following an acute monoarthropathy that affected the metatarsophalangeal joint of his left big toe. Analysis of synovial fluid aspirated from the joint showed the presence of negatively birefringent crystals under polarised light. Following acute treatment to settle the inflammation, the rheumatologist decides to initiate prophylactic treatment with allopurinol to prevent recurrence.

What is the most appropriate medication to initiate alongside allopurinol?

A.Azathioprine

B.Diclofenac

C.Febuxostat

D.Hydroxychloroquine

E.Methotrexate

Answer:Diclofenac

Explanation:

NSAID or colchicine 'cover' should be used when starting allopurinol

Important for meLess important

This patient is experiencing an acute flare up of gout. The pattern of big toe metatarsophalangeal joint monoarthropathy along with negatively birefringent crystals on polarised light microscopy of the synovial fluid are characteristic of acute gout.

Allopurinol is a xanthine oxidase inhibitor which reduces the production of uric acid and it is used in the prophylactic treatment of gout to reduce deposition of urate in joints. However starting allopurinol can in itself trigger an acute flare up of gout. Therefore 'cover' with an NSAID or colchicine is required when starting allopurinol to prevent an acute flare up of gout. Diclofenac is an NSAID and so should be given alongside allopurinol initially.

Azathioprine use is contraindicated alongside allopurinol as inhibition of xanthine oxidase can cause an accumulation of 6-mercaptopurine, the activated form of azathioprine, and lead to toxicity.

Febuxostat is an alternative to allopurinol that can be used if allopurinol is contraindicated or not tolerated. However it would not be used alongside allopurinol.

Hydroxychloroquine and methotrexate do not have a role in the treatment of gout. However they do have a role in maintenance treatment for other rheumatological diseases such as rheumatoid arthritis.

Question:

A 44-year-old man asks for advice. He is due to go on a long bus journey but suffers from debilitating motion sickness. Which one of the following medications is most likely to prevent motion sickness?

A.Cyclizine

B.Chlorpromazine

C.Metoclopramide

D.Prochlorperazine

E.Domperidone

Answer:Cyclizine

Explanation:

Motion sickness - hyoscine > cyclizine > promethazine

Important for meLess important

Question:

A three-year-old girl presents with her parents to the accident and emergency department. The parents are concerned that they've noticed a new widespread rash on her abdomen. The parents deny any history of trauma or recent infection.

On examination you note a petechial rash covering the anterior abdomen and to a lesser extent the posterior right forearm. The child looks pale and is not playing with the toys set out. You also find hepatosplenomegaly and cervical lymphadenopathy.

While waiting for blood results you dip her urine which proves unremarkable and take a tympanic temperature reading of 36.6º.

What is the most likely diagnosis?

A.Non-accidental injury

B.Meningococcal septicemia

C.Acute lymphoblastic leukaemia

D.Henoch-Schonlein purpura

E.Haemophilia A

Answer:Acute lymphoblastic leukaemia

Explanation:

Acute lymphoblastic leukaemia may present with haemorrhagic or thrombotic complications due to DIC.

Important for meLess important

Trauma, accidental or not, can result in a petechial rash. However, with the other salient findings in this child another diagnosis is more likely.

Meningococcal disease is what comes to everyone's mind with a non-blanching rash and is likely why the parents brought their child to the emergency department in the first place. What counts against this option is no obvious source of infection and the fact the girl is apyrexial.

The lesions of Henoch-Schonlein purpura are normally confined to buttocks, extensor surfaces of legs and arms. Other symptoms such as haematuria or swollen painful knees and ankles are not present.

Haemophilia A is a genetic deficiency of clotting factor VIII, that usually affects males. Due to the other findings on examination, it is not the most likely diagnosis.

Question:

A 68-year-old woman has presented with painless jaundice. On examination there is a palpable gallbladder. A cancer blocking the common bile duct is suspected. Blood is taken in order to screen for serum tumour markers.

Which of the following tumour markers is the most relevant to the most likely diagnosis?

A.CEA

B.AFP

C.CA125

D.CA19-9

E.HCG

Answer:CA19-9

Explanation:

Pancreatic cancer - CA 19-9

Important for meLess important

This question requires you to first recognise the most likely diagnosis - pancreatic cancer.

CA 19-9 is the most specific tumour markers from the options in cases of pancreatic cancer.

Question:

A 45-year-old man presents to his GP complaining of recurrent episodes of central facial pain and nasal congestion that have been occurring over the past 12 weeks. He reports that during these episodes there is a clear nasal discharge and he experiences loss of smell. The patient has a past medical history of asthma. He requests advice from the GP about treatment options available to him.

What treatment option can be considered in this patient?

A.Anterior rhinoscopy

B.Endoscopic sinus surgery

C.Nasal irrigation with saline solution

D.Oral antibiotics

E.Oral corticosteroids

Answer:Nasal irrigation with saline solution

Explanation:

Nasal irrigation with saline solution is a treatment option for chronic rhinosinusitis

Important for meLess important

The patient has chronic rhinosinusitis as his symptoms have been persisting for >12 weeks. Treatments that can be used according to NICE guidance include nasal irrigation with saline, intranasal corticosteroids and allergen/irritant avoidance. Therefore nasal irrigation with saline solution is the correct answer.

Whilst intranasal corticosteroids are used in the management of chronic rhinosinusitis, oral corticosteroids would not be a suitable treatment in this case and so this answer is not correct.

The patient is unlikely to have a secondary bacterial infection as he describe the discharge as being clear, therefore antibiotics would not be required at this stage.

Anterior rhinoscopy is an investigation that would be performed if the patient did not respond to initial treatment measures and so is incorrect.

Endoscopic sinus surgery would be considered if the patient did not respond to medical management and therefore is not correct.

Question:

A 79-year-old is investigated for weight loss.

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What is the most likely diagnosis?

A.Paget's disease of the bone

B.Lung cancer

C.Liver cancer

D.Reactivation of pulmonary tuberculosis

E.Mesothelioma

Answer:Lung cancer

Explanation:

The x-ray shows a large right sided hilar mass with resultant collapse of the right upper lobe. As a consequence the hyperexpanded right middle and lower lobes are hyperlucent ('blacker').

Question:

A 1-year-old girl is noted to have a continuous murmur, loudest at the left sternal edge. She is not cyanosed. A diagnosis of patent ductus arteriosus is suspected. What pulse abnormality is most associated with this condition?

A.Collapsing pulse

B.Bisferiens pulse

C.Pulsus parodoxus

D.'Jerky' pulse

E.Pulsus alternans

Answer:Collapsing pulse

Explanation:

Patent ductus arteriosus - large volume, bounding, collapsing pulse

Important for meLess important

Question:

A 45-year-old male is investigated for polyuria. A water deprivation test is done to ascertain the cause.

Water deprivation started at 8 am.

Plasma osmolality after 8 hours 305 mOsm/kg

Urine osmolality after 8 hours 190 mOsm/kg

Urine osmolality after 4 hours after desmopressin 575 mOsm/kg

Based on the presumed diagnosis, what feature is this patient most likely to have in their past medical history?

A.A recent acute kidney injury (AKI)

B.Concurrent lithium use

C.Primary hyperparathyroidism

D.Recent transsphenoidal pituitary surgery

E.Schizophrenia

Answer:Recent transsphenoidal pituitary surgery

Explanation:

Water deprivation test: cranial DI

urine osmolality after fluid deprivation: low

urine osmolality after desmopressin: high

Important for meLess important

This is a case of cranial diabetes insipidus. Despite 8 hours of water deprivation, the patient's urine is still incredibly dilute suggesting a water concentration issue with vasopressin. The fact that the urine osmolality increments wonderfully with desmopressin, it suggests that there is a vasopressin production issue, implying cranial diabetes insipidus.

Recent transsphenoidal is a well-documented cause for cranial diabetes insipidus and would be most relevant given the water deprivation findings above.

Now to look at the other options.

Recent AKI would be important in the polyuric phase of an AKI, however, these results suggest a vasopressin issue given the marked response to desmopressin.

Concurrent lithium use is relevant for nephrogenic diabetes insipidus.

Primary hyperparathyroidism with subsequent hypercalcaemia is another well-documented cause for nephrogenic diabetes insipidus.

Schizophrenia is one of the most common associations with psychogenic (primary) polydipsia.

Question:

A 45-year-old women with a thyroid carcinoma undergoes a total thyroidectomy. The post operative histology report shows a final diagnosis of medullary type thyroid cancer. Which of the tests below is most likely to be of clinical use in screening for disease recurrence?

A.Serum CA 19-9 Levels

B.Serum thyroglobulin levels

C.Serum PTH levels

D.Serum calcitonin levels

E.Serum TSH levels

Answer:Serum calcitonin levels

Explanation:

Medullary thyroid cancers often secrete calcitonin and monitoring the serum levels of this hormone is useful in detecting sub clinical recurrence.

Question:

A 42-year-old man of Afro-Caribbean origin is diagnosed as having hypertension. Secondary causes of hypertension have been excluded. What is the most appropriate initial drug therapy?

A.Losartan

B.Bisoprolol

C.Doxazosin

D.Perindopril

E.Amlodipine

Answer:Amlodipine

Explanation:

Newly diagnosed patient of black African or African–Caribbean origin with hypertension - add a calcium channel blocker

Important for meLess important

ACE inhibitors have reduced efficacy in black patients and are therefore not used first-line

Question:

You are a doctor reviewing a 45-year-old man who has presented with large superficial, flaccid vesicles and bullae present on his trunk, alongside mucosal ulceration and oral involvement. On examination, the vesicles and bullae rupture easily on touch and are painful and there is an associated itch. Given the most likely diagnosis, antibodies target which structure in this condition?

A.Basement membrane

B.Tissue transglutaminase

C.Subcutaneous tissue

D.Desmosomes

E.Dermis

Answer:Desmosomes

Explanation:

Pemphigus - antibodies target the desmosomes that connect the cells

Important for meLess important

1 - Incorrect. Antibodies to the basement membrane are found in pemphigoid and not in pemphigus.

2- Incorrect. Antibodies to tissue transglutaminase are found in dermatitis herpetiformis, which is associated with coeliac disease.

3 - Incorrect. Antibodies do not target the subcutaneous tissue in pemphigus.

4 - Correct. Pemphigus is an autoimmune disease caused by antibodies directed against desmosomes. The antibodies target desmoglein 3, a cadherin-type epithelial cell adhesion molecule. Pemphigus presents in younger people and with flaccid, easily ruptured vesicles and bullae and mucosal ulceration.

5 - Incorrect. Antibodies do not target the dermis in pemphigus.

Question:

A 19-year-old male is brought into resus by an ambulance after being found extremely drowsy by his roommate, who wasn't able to bring him round. The patient is borderline unconscious, with widespread clonus, extreme diaphoresis and dilated pupils. His temperature was taken and it read at 41.6ºC. When asked, the roommate states he is not completely aware of the patient's past medical history but knows he has suffered from depression. He has also been asked to buy strange medicine from the shops for him but he cannot remember the name.

What is the most likely diagnosis in this patient?

A.Aspirin overdose

B.Neuroleptic malignant syndrome

C.Opioid overdose

D.Pheochromocytoma

E.Serotonin syndrome

Answer:Serotonin syndrome

Explanation:

St. John's Wort may interact with SSRIs to cause serotonin syndrome

Important for meLess important

The correct answer is serotonin syndrome, caused by the patients likely ingest of an SSRI and St. John's Wort, both taken to help their depression.

Serotonin syndrome is a potentially fatal iatrogenic complication that affects the nervous system. The classic signs are neuromuscular excitations, hyperthermia (autonomic dysfunction), dilated pupils and altered mental status.

This is different from neuroleptic malignant syndrome, which is often caused by antipsychotics and results in 'lead pipe rigidity' hyporeflexia and haemodynamic instability.

Aspirin overdose often presents with tachypnoea (causing respiratory alkalosis), seizures, hyperthermia and agitation. It may therefore be difficult to distinguish between this and serotonin syndrome without a good history and examination.

Opioids can alter mental status and have neuromuscular effects (often weakness rather than excitation). It will also constrict the pupils rather than dilate, unless the patient is in withdrawal.

Pheochromocytoma is a tumour of the adrenal gland that causes raised levels of catecholamines in the blood and subsequent increased sympathetic activity, which can lead to diaphoresis and extremely high blood pressure but has no effect on the pupils or muscle contractions.

Question:

A 71-year-old male attends renal clinic for a review of his chronic kidney disease (CKD. He has type 2 diabetes and CKD stage 4. His latest eGFR is 21ml/min/1.73m². He explains that over the past 1 month, he has been feeling fatigued and has noticed shortness of breath on exertion. Review of his blood tests show:

Hb 91 g/L Male: (135-180)

Ferritin 16 ng/mL (20 - 230)

Vitamin B12 342 ng/L (200 - 900)

Folate 3.8 nmol/L (> 3.0)

He denies any change in bowel habit, abdominal pain or rectal bleeding.

What is the most appropriate initial action?

A.Prescribe an erythropoiesis-stimulating agent (ESA)

B.Prescribe ferrous sulphate

C.Prescribe folic acid

D.Reassurance and monitoring

E.Prescribe vitamin B12 injections

Answer:Prescribe ferrous sulphate

Explanation:

Anaemia in CKD: correct iron deficiency before starting erythropoiesis-stimulating agents

Important for meLess important

The most appropriate initial action, in this case, is to prescribe ferrous sulphate. This patient has an iron deficiency anaemia and therefore should be given iron replacement. Iron deficiency should be corrected before starting erythropoiesis-stimulating agents (ESA).

Prescribe an ESA is not an appropriate first-line management option as this patient has iron deficiency and this should be corrected first.

Prescribe folic acid is inappropriate as this patient has normal folate levels.

Reassurance and monitoring is an incorrect answer as it does not address this patient's symptomatic anaemia.

Prescribe vitamin B12 injections is inappropriate as his vitamin B12 levels are normal therefore this is not the cause of his anaemia.

Question:

You review the hands of a 60-year-old man who is complaining of 'arthritis' in his hands:

© Image used on license from DermNet NZ

What is the most likely diagnosis?

A.Rheumatoid arthritis

B.Systemic sclerosis

C.Systemic fungal infection

D.Psoriatic arthropathy

E.Reiter's syndrome

Answer:Psoriatic arthropathy

Explanation:

The combination of nail changes, skin changes and arthritis points to a diagnosis of psoriatic arthropathy.

Question:

A 34-year-old medical secretary reports pain on the thumb side of her right wrist, ongoing for the past week. She also reports that right wrist appears more swollen than her left. On examination, she has pain over her radial styloid on forced flexion of the thumb

What is the most likely diagnosis?

A.Rheumatoid arthritis

B.Mallet thumb

C.Carpal tunnel syndrome

D.Osteoarthritis

E.Tenosynovitis

Answer:Tenosynovitis

Explanation:

This patient has De Quervain's tenosynovitis as she is Finkelstein test positive ie. she has pain over her radial styloid on forced abduction/flexion of the thumb.

Rheumatoid arthritis is an autoimmune condition which produces bilateral symptoms.

Mallet thumb is an injury to the end of the thumb which causes it to bend towards the palm.

Carpal tunnel syndrome is caused by median nerve compression and results in paresthesia of the thumb, index and middle finger

Osteoarthritis is mechanical wear and tear which mainly affects the elderly.

Question:

A 30-year-old woman presents with intermittent episodes of mild jaundice. She states that she is otherwise well during these episodes but has noted that they tend to coincide with her period or occur when she has an upper respiratory tract infection. She states she thinks her mother has had similar episodes. Her blood test results are as follows.

Hb 120 g/l

Platelets 220 \* 109/l

WBC 5.2 \* 109/l

Urea 4.3 mmol/l

Creatinine 80 µmol/l

Bilirubin 40 µmol/l

ALP 50 u/l

ALT 35 u/l

γGT 20 u/l

Albumin 40 g/l

What is the most likely diagnosis?

A.Autoimmune hepatitis

B.Hepatitis B

C.Hepatitis C

D.Gilberts syndrome

E.Crigler-Najjar syndrome

Answer:Gilberts syndrome

Explanation:

An isolated rise in bilirubin in response to physiological stress is typical of Gilbert's syndrome

Important for meLess important

Based on her history, the likely autosomal dominant inheritance pattern, and her liver function tests, the most likely diagnosis is Gilbert's syndrome.

It is important to note that she is otherwise well and her liver function tests are normal apart from an elevated bilirubin. This makes a viral or autoimmune hepatitis less likely. Crigler-Najjar is usually diagnosed in infancy and has a very poor prognosis and is therefore not the correct answer in this case.

Question:

A 25-year-old man is involved in a fight outside the hospital and falls to the floor after being punched in the head and is unconscious. As he fell, his head hit the floor first. A junior doctor calls for help.

He is still unconscious. There is no obvious injury or bleeding besides slight scratching and bruising.

What is the most appropriate next step for the junior doctor to take to ensure his airway is protected?

A.Endotracheal tube

B.Head-tilt chin-lift manoeuvre

C.Jaw thrust manoeuvre

D.Laryngeal mask

E.Nasopharyngeal tube insertion

Answer:Jaw thrust manoeuvre

Explanation:

In basic airway management, a jaw thrust is preferred if concern about cervical spine injury

Important for meLess important

Jaw thrust manoeuvre is correct. This patient has fallen to the floor and lost consciousness after being hit on the head, and his head hit the floor first as he landed. Therefore, a cervical spine injury may be likely. As with all acute presentations, an ABCDE approach should be taken, with the first element being assessing and optimising the airway. Given that this scenario is taking place outside of a hospital, the most appropriate initial steps would be basic airway management, with the jaw thrust manoeuvre being the best option for suspected cervical spine injury. This is because this method results in the least motion of the cervical spine, avoiding potential complications such as cervical nerve impingement, which can have devastating consequences such as tetraplegia.

Endotracheal tube is incorrect. This is typically used in a hospital setting and often requires paralysis prior to use. Given that this option takes time to prepare, the most appropriate initial option is basic airway management manoeuvres, of which the most appropriate option for a suspected cervical spine injury is a jaw thrust manoeuvre.

Head-tilt chin-lift manoeuvre is incorrect. Although this is often the basic airway management step of choice, it is avoided in cases where cervical spinal injury is suspected, as it involves moving the cervical spine, which may be unstable, risking the development of potentially serious complications such as nerve impingement and tetraplegia.

Laryngeal mask is incorrect. Although this is widely used, relatively easy to insert, and does not require paralysis, it takes time to prepare. The most appropriate initial option is basic airway management manoeuvres, of which the most appropriate option for a suspected cervical spine injury is a jaw thrust manoeuvre.

Nasopharyngeal tube insertion is incorrect. This is typically used in patients having seizures, as it may not be possible to insert an oropharyngeal airway. Like other airway management techniques, this takes time; therefore, basic airway management manoeuvres are more appropriate in this scenario. The most appropriate option for a suspected cervical spine injury is a jaw thrust manoeuvre.

Question:

A 56-year-old man presents to the GP with a 5-day history of lower back pain that started after moving a bed in the house. He has noticed some weakness in his left leg. He has no past medical history and has no saddle anaesthesia or incontinence.

On examination, there is sensory loss over the left anterior thigh. Hip flexion, knee extension, and hip adduction are weak. A femoral stretch test is positive and a sciatic stretch test is negative. The knee reflex is reduced, however, all other reflexes are intact.

What site is most likely to be affected in this patient?

A.L3

B.L4

C.L5

D.S1

E.S2

Answer:L3

Explanation:

L3 nerve root compression: sensory loss over anterior thigh, weak hip flexion, knee extension and hip adduction, reduced knee reflex

Important for meLess important

The presence of lower back pain and neurological symptoms including weakness, numbness, and tingling can suggest a prolapsed lumbar disc, provided more concerning diagnoses such as cauda equina syndrome are less likely (as is the case here with this patient having no saddle paraesthesia, no bilateral symptoms, and no incontinence). When approaching these questions, it is helpful to assess what reflexes are affected first, as this can narrow down the likely roots affected, then other nerve signs such as the sciatic nerve stretch test and femoral nerve stretch test. A helpful way of remembering nerve roots and reflexes is 'S1+S2 I tie my shoe (ankle reflex), L3+L4 I kick the door (knee jerk reflex), C5+C6 I grab some sticks (biceps reflex), C7+C8 I lay them straight (triceps reflex).

L3 is correct. Since the only reflex affected is the knee jerk reflex, which is reduced, it is most likely that either L3 or L4 are affected, as they supply the knee jerk reflex. Sensory loss over the anterior thigh and weak hip flexion, knee extension, and hip abduction suggest the presence of an L3 lesion. A positive femoral stretch test supports this diagnosis as the femoral nerve is supplied by L2, L3, and L4.

L4 is incorrect. Although this can lead to a reduced knee jerk reflex (as L3 and L4 supply the knee jerk) and may have a positive femoral nerve stretch test (as the femoral nerve has the roots L2, L3, and L4), this would be associated with a positive sciatic nerve stretch test (as the stretch test is useful in assessing the involvement of the roots L4-S1, because they are the only sciatic nerve roots that can be compressed with movement). Furthermore, this is associated with sensory losses over the anterior knee and medial malleolus which is not seen here.

L5 is incorrect as this is not associated with a weak knee-jerk reflex as it does not supply any lower limb reflexes. Furthermore, this is not associated with a positive femoral nerve stretch test (as its roots are L2, L3, and L4) and is associated with a positive sciatic nerve stretch test (as the stretch test is useful in assessing the involvement of the roots L4-S1, because they are the only sciatic nerve roots that can be compressed with movement), which is not seen here. Additional features of an L5 lesion include sensory loss over the dorsum of the foot and weakness in foot dorsiflexion, which are not seen here.

S1 is incorrect as this is associated with a weak ankle reflex (as it is supplied by S1 and S2), which is not seen here. This is also not associated with a positive femoral nerve stretch test but may have a positive sciatic nerve stretch test. Furthermore, this can cause sensory losses over the posterolateral leg and lateral foot and cause weakness in foot plantarflexion. These features are not seen here.

S2 is incorrect as this is associated with a weak ankle reflex (as it is supplied by S1 and S2), which is not seen here. This is not associated with a positive femoral nerve stretch test. This causes sensory loss on the medial side of the inferior aspect of the foot and the posterior middle segment of the leg.

Question:

You are performing a newborn examination. Which one of the following best describes the clinical findings of a clubfoot?

A.Inverted + plantar flexed foot which is not passively correctable

B.Inverted + dorsiflexed foot + pes planus which is not passively correctable

C.Inverted + plantar flexed foot + pes planus which is passively correctable

D.Everted + dorsiflexed foot which is not passively correctable

E.Inverted + plantar flexed foot which is passively correctable

Answer:Inverted + plantar flexed foot which is not passively correctable

Explanation:

Question:

You are a GP seeing a 39-year-old woman who has recently been investigated for secondary infertility and diagnosed with premature menopause. She has been suffering with night sweats and hot flushes and after discussion agrees to commence hormone replacement therapy. There is no other past history.

She asks you how long she should take this for?

A.Five years and then review as risk of CVD increases

B.HRT is contra-indicated in this case

C.She should continue HRT for ten years and then review

D.Until symptoms well-controlled for a year and then can stop HRT

E.She should continue HRT until the age of 50

Answer:She should continue HRT until the age of 50

Explanation:

If women take HRT for premature menopause it should be continued until the age of 50 years

Important for meLess important

Premature menopause is defined as menopause before the age of 40. This is usually diagnosed with blood tests primarily an elevated FSH on two different occasions.

If HRT is commenced for premature menopause it should continue until the patient reaches the age of 50.

NICE 2019 guidelines advise: starting hormonal treatment (either with HRT or a combined hormonal contraceptive) and continuing treatment until at least the age of natural menopause (unless contraindicated) reduces the risk of chronic diseases, including cardiovascular disease and osteoporosis. HRT may have a beneficial effect on blood pressure when compared with a combined hormonal contraceptive. Both HRT and combined hormonal contraceptives offer bone protection.

Question:

A 5-year-old boy presents to the emergency department with severe pain in their right hip and a sudden inability to weight-bear. His parents are very concerned about the possibility of an infection. He had a viral upper respiratory tract infection 1 week ago, from which he has recovered. He appears well. He has had no trauma to the hip.

Blood tests revealed normal WCC and ESR. An ultrasound scan of the hip shows a mild effusion in the joint capsule.

What is the most appropriate next step?

A.Urgent orthopaedic referral

B.Joint aspiration of the hip

C.MRI of the hip

D.X-ray of the hip

E.Recommend rest and analgesia

Answer:Recommend rest and analgesia

Explanation:

Transient synovitis is self-limiting, requiring only rest and analgesia

Important for meLess important

This boy has transient synovitis. He is systemically well, which makes septic arthritis unlikely. He had a preceding infection, which is commonly seen in transient synovitis. Mild effusion is often seen in transient synovitis and is not a sign of infection.

Remember that transient synovitis is self-limiting. Only rest and analgesia are required. For this reason, the remaining options are not appropriate. An x-ray may have been indicated if a fracture was suspected, but there was no history of trauma.

Question:

A 66-year-old woman attends the clinic with weakness and muscle pain. On examination, you note a proximal muscle weakness of the upper (MRC grade 4/5) and lower (MRC grade 3/5) limbs. You also note a bilateral lilac discolouration of the eyelids with swelling of the eyelids and skin around the eyes.

What antibody is most specific to the underlying condition?

A.Anti dsDNA antibody

B.Anti-Jo-1 antibody

C.Anti-PL-7 antibody

D.Anti-Smith antibody

E.Antinuclear antibody

Answer:Anti-Jo-1 antibody

Explanation:

Dermatomyositis is associated with the anti-Jo-1 antibody

Important for meLess important

The patient most likely has a diagnosis of dermatomyositis as indicated by the proximal muscle weakness and heliotrope rash. Polymyositis and dermatomyositis are autoimmune disorders where there is inflammation in the muscles (myositis). Polymyositis is a condition of chronic inflammation of muscles. Dermatomyositis is a connective tissue disorder where there is a chronic inflammation of the skin and muscles. The presence of cutaneous manifestations, in this case, favours a diagnosis of dermatomyositis.

Anti-Jo-1 antibody is correct. Although this antibody is not particularly sensitive to dermatomyositis, it is highly specific, making this the best answer. Antibodies to Jo1 are found in 20-60% of patients with primary polymyositis or dermatomyositis and less commonly in association with other connective tissue disease. Anti-Jo1 positive patients tend to have the poorest prognosis with more prominent lung involvement and less skin involvement

Anti dsDNA is incorrect. The anti-double stranded DNA antibodies (anti-dsDNA) are considered a specific marker for systemic lupus erythematosus (SLE). Although muscle weakness can occur in SLE, the presence of the heliotrope rash favours a diagnosis of dermatomyositis. Furthermore, the absence of other diagnostic criteria of SLE (e.g. oral ulcers, fever, and neurological dysfunction) makes it a less likely diagnosis.

Anti-PL-7 antibody is incorrect. Although this can be positive in dermatomyositis, it is not sensitive nor specific to this condition.

Anti-Smith is incorrect. Anti-Smith antibody is another highly specific antibody for SLE.

Antinuclear antibody (ANA) is incorrect. Although ANA is a relatively sensitive test, with the majority of patients (around 80%) being positive, it is not specific to dermatomyositis.

Question:

A 34-year-old woman complains of severe itching during pregnancy which is worse at night and particularly affects her hands and feet. There is no obvious rash. She has previously had a stillbirth at 37 weeks. What is the most effective treatment for her condition?

A.Antihistamines

B.Topical creams

C.Anti-fungals

D.Ursodeoxycholic acid

E.Cyclizine

Answer:Ursodeoxycholic acid

Explanation:

This patient is most likely suffering with obstetric cholestasis. There is an increased risk of premature birth and stillbirth. The hallmark is intense pruritus and serum bile acids are usually elevated. Bilirubin and other liver function tests cannot be relied upon, as they may be normal. The most definitive treatment available is ursodeoxycholic acid (UDCA), which was originally derived from bear gallbladders but is generally synthetic in origin now. Antihistamines and topical menthol emollients have a symptomatic role in treatment but UDCA is more likely to improve outcomes.

Question:

A 17-year-old female presents to the emergency department with peri-umbilical pain. The pain is sharp in nature, is exacerbated by coughing and came on gradually over the past 12 hours. On examination, she is unable to stand on one leg comfortably and experiences pain on hip extension. The is no rebound tenderness or guarding. A urine pregnancy test is negative, and her temperature is 37.4ºC. The following tests are done:

Hb 135 g/L Male: (135-180)

Female: (115 - 160)

Platelets 300 \* 109/L (150 - 400)

WBC 14 \* 109/L (4.0 - 11.0)

Neuts 11 \* 109/L (2.0 - 7.0)

Lymphs 2 \* 109/L (1.0 - 3.5)

Mono 0.8 \* 109/L (0.2 - 0.8)

Eosin 0.2 \* 109/L (0.0 - 0.4)

Na+ 136 mmol/L (135 - 145)

K+ 4 mmol/L (3.5 - 5.0)

Urea 6 mmol/L (2.0 - 7.0)

Creatinine 80 µmol/L (55 - 120)

CRP 24 mg/L (< 5)

What is the most likely diagnosis?

A.Acute appendicitis

B.Inguinal hernia

C.Lower urinary tract infection

D.Ovarian torsion

E.Upper urinary tract infection

Answer:Acute appendicitis

Explanation:

Neutrophil predominant leucocytosis is present in 80–90% of people with appendicitis

Important for meLess important

Acute appendicitis is the most likely diagnosis. The pain is peri-umbilical which is classical of early appendicitis. The patient is also psoas sign positive. On the full blood count, there is a neutrophil predominant leucocytosis, which is indicative of infection.

Ovarian torsion can cause pain which is sharp in nature, however it is usually acute onset and very severe - it is unlikely to become gradually worse over 12 hours.

The pain from an inguinal hernia can be exacerbated by coughing, however, this pain is more likely to be groin pain, not peri-umbilical. There is also no mention of a mass on the examination of the abdomen.

A lower urinary tract infection is more likely to present with suprapubic pain, and be associated with lower urinary tract symptoms eg dysuria.

An upper urinary tract infection is unlikely in the absence of high fever and/or flank pain.

Question:

A 38-year-old male presents to the emergency department after fainting when getting out of bed this morning. He reports recurrent upper abdominal pain over the last few weeks which is described as burning. Over the past 2 days, he has also passed black tarry stools that have a foul odour. He has no past medical history but has been taking over-the-counter ibuprofen for lower back pain recently.

On examination, he appears pale and has some epigastric tenderness, but his abdomen is otherwise soft and non-tender. Bowel sounds are normal. His blood pressure is 85/40 mmHg, his heart rate is 110 beats per minute, his temperature is 37.0ºC, and his pulse is weak.

What is the most likely cause of this patient's presentation?

A.Acute gastritis

B.Bleeding oesophageal varices

C.Bleeding peptic ulcer

D.Gastric cancer

E.Perforated peptic ulcer

Answer:Bleeding peptic ulcer

Explanation:

Hypotension + melaena → bleeding peptic ulcer

Important for meLess important

The correct answer is a bleeding peptic ulcer. The patient has presented with a history of burning epigastric pain combined with a history of NSAID use; this is suggestive of a peptic ulcer. The melaena and episode of syncope suggest that the peptic ulcer is bleeding, therefore he will need to have an oesophagogastroduodenoscopy (OGD) to confirm the diagnosis.

Note that melaena is black tarry stools that have a very foul odour. If a patient complains of dark stools, make sure to check that they are describing melaena and not something else. For example, ask if it has a foul smell and if it looks like tar.

A perforated peptic ulcer would present with signs and symptoms of peritonitis as contents from the gastrointestinal system will enter the peritoneal cavity. The signs and symptoms that would be seen include diffuse abdominal pain, abdominal distension, rigidity, and guarding. This patient does have a soft and mostly non-tender abdomen, therefore this is unlikely.

Acute gastritis can present similar to peptic ulcer disease as they both can present with a burning upper abdominal pain. The difference between this presentation and acute gastritis is that gastritis would not present with melaena or syncope.

Gastric cancer is unlikely given this patient's age. It can present with melaena but is more likely to present with dyspepsia, anorexia, early satiety, and dysphagia. As these are not present in this patient's history, it is unlikely to be gastric cancer in this patient.

Bleeding oesophageal varices are unlikely in this patient as there is nothing in his history to suggest this diagnosis. Features that would suggest oesophageal varices include a past medical history of liver cirrhosis and portal hypertension, in a patient who presents with haematemesis.

Question:

According to recent NICE guidelines on the management of respiratory tract infections, which one of the following patients should not be considered for immediate antibiotic prescribing:

A.A 12-year-old who has acute sinusitis and a temperature of 37.6ºC

B.A 23-year-old woman who has acute tonsillitis. Her temp is 37.8ºC, tonsillar exudate is seen and there is tender lymph nodes

C.A 5-year-old who has acute otitis media associated with otorrhoea

D.A 7-month old who has bilateral otitis media and is apyrexial

E.An 18-month old who has bilateral otitis media and a temperature of 38.1ºC

Answer:A 12-year-old who has acute sinusitis and a temperature of 37.6ºC

Explanation:

Antibiotics are not recommended for uncomplicated sinusitis.

Question:

A 75-year-old lady is admitted in an acute confusional state secondary to a urinary tract infection. Despite antibiotic therapy, reassurance and environmental modification she remains agitated. You are considering prescribing haloperidol. Which one of the following conditions may be significantly worsened if haloperidol is prescribed?

A.Myasthenia gravis

B.Parkinson's disease

C.Essential tremor

D.Epilepsy

E.Depression

Answer:Parkinson's disease

Explanation:

All antipsychotics may worsen the symptoms of Parkinson's disease and should be avoided if possible. A small dose of oral lorazepam may be an alternative in such a situation.

Question:

An 8-year-old boy who is known to have asthma is reviewed. His current treatment is a salbutamol inhaler as required and beclometasone inhaler 100mcg bd. Despite this, he regularly requires salbutamol for exacerbations and suffers with a night time cough.

Following NICE guidance, what is the most appropriate next step in management?

A.Increase beclometasone to 200mcg bd

B.Referral to a paediatrician

C.Trial of a long-acting beta-agonist

D.Trial of a leukotriene receptor antagonist

E.Trial of an oral theophylline

Answer:Trial of a leukotriene receptor antagonist

Explanation:

Child aged 5-16 years with asthma not controlled by a SABA + paediatric low-dose ICS asthma management in children 5-16 - add a leukotriene receptor antagonist

Important for meLess important

Question:

A 13-year-old girl presents to the emergency department complaining of coryzal symptoms. She has been experiencing a fever, runny nose, headache and a non-productive cough for several days. She appears comfortable, alert and well hydrated. Her mother is concerned because despite giving her paracetamol and ibuprofen, her temperature does not seem to be coming down. She took the last dose of antipyretics one hour ago. On examination, her temperature is 38.9ºC, her heart rate is 110bpm, her blood pressure is 90/70mmHg and her respiratory rate is 26 breaths per minute. Her chest sounds clear, her throat is slightly red with no signs of tonsillitis. Her ears are non-tender and otoscopy shows no abnormalities. She does not have any rashes and shows no signs of photophobia or neck stiffness. How should this patient be managed?

A.Advise that this is likely viral, safety-net on importance of hydration and send home with antipyretics

B.Give the patient another dose of paracetamol and ibuprofen and review in an hour to assess for improvement

C.Prescribe 10 days of oral phenoxymethylpenicillin to be taken as an outpatient and safety-net

D.Initiate sepsis six protocol

E.Give the patient a dose of aspirin and review in an hour to assess for improvement

Answer:Initiate sepsis six protocol

Explanation:

Children aged over 12 have similar normal vital signs to an adult

Important for meLess important

This child has presented with several features of sepsis. Her temperature is 38.9, heart rate is >100bpm which is unusual for a child over the age of 12. Her systolic blood pressure is <100mmHg, and her respiratory rate is raised. She has a suspected source of this infection (respiratory tract). With these vital signs, she meets both the SIRS and the qSOFA criteria for sepsis. For a temperature to be so high despite having taken antipyretics suggests a bacterial source of infection rather than simple viral infection. Hence it is important to initiate the sepsis six protocol. She should also have further investigations to find the location of the infection including a chest X-ray.

It would not be suitable to send this patient home as her vital signs suggest she is acutely unwell and could deteriorate soon. It is not appropriate to give her another dose of ibuprofen or paracetamol as she has only taken these 1 hour ago and hence it is too soon for another dose. Aspirin should be not be given to children as it can cause Reye's syndrome, a rare but serious condition. Phenoxymethylpenicillin is the antibiotic of choice for bacterial throat infections, however there was no clear bacterial source of infection in this child's throat, and as she has signs of sepsis she should be started on broad-spectrum IV antibiotics.

Question:

A 53-year-old woman presents to her GP with a 2 month history of weight loss, irritability and heat intolerance.

Which of the following additional features would most support a diagnosis of Graves' disease rather than other causes of hyperthyroidism?

A.Antecedant viral infection

B.Anti-thyroid peroxidase autoantibodies

C.Exophthalmos

D.Onycholysis

E.Goitre

Answer:Exophthalmos

Explanation:

Exophthalmos is a specific feature of Grave's disease rather than generic hyperthyroidism

Important for meLess important

Thinking of molecular mimicry as a cause of an autoimmune disease would be reasonable, however viral infection is more commonly associated with De Quervain's thyroiditis.

Anti-thyroid peroxidase may be found in Graves' disease in 75% of cases, however anti-TPO is not a specific marker, as it is also found in 90% of patients with Hashimoto's thyroiditis. Additionally 10-15% of healthy individuals can be positive for anti-TPO.

Exophthalmos is a feature specific to Graves' disease.

Onycholysis is more commonly a symptom of hyperthyroidism, rather than Graves', although cases of onycholysis associated with Graves' disease have been described. [1]

Goitre is a non-specific indicator of thyroid dysfunction, being found in hypothyroid, euthyroid and hyperthyroid conditions.

1:https://www.researchgate.net/publication/330523378Onycholysisanearlyindicatorofthyroiddisease

Question:

A 25-year-old man comes to the outpatient clinic with complaints of lower back pain and stiffness for six months. The pain and stiffness are decreased with exercise but are worse at night. On examination, there is a decreased flexion of the spine. Ankylosing spondylitis is suspected. Blood investigations and X-rays of the spine are planned.

Which of the following best supports the diagnosis in this patient?

A.ANA positive

B.HLA-B27 positive

C.Raised ESR and CRP

D.Rheumatoid factor positive

E.Sacroiliitis on X-ray

Answer:Sacroiliitis on X-ray

Explanation:

Diagnosis of ankylosing spondylitis can be best supported by sacro-ilitis on a pelvic X-ray

Important for meLess important

Ankylosing spondylitis is a spondyloarthropathy, typically presents in males aged 20-30 years old. A plain x-ray of the sacroiliac joints is the most useful investigation in establishing the diagnosis. Radiographs may be normal early in the disease, and later changes include sacroiliitis, squaring of lumbar vertebrae, and bamboo spine.

ANA and rheumatoid factor are not positive in ankylosing spondylitis. ANA is positive in an autoimmune disease like SLE. Rheumatoid factor is positive in rheumatoid arthritis.

HLA-B27 is of little use in making the diagnosis as it is positive in patients with ankylosing spondylitis and also in patients without the disease.

Inflammatory markers (ESR, CRP) are typically raised, although normal levels do not exclude ankylosing spondylitis.

Question:

A 65-year-old patient is being followed up at his GP for an exacerbation of their hypertension.

Two months ago, his in-clinic blood pressure reading was 145/85 mmHg and he has returned after ambulatory monitoring, which has revealed an average blood pressure of 142/82 mmHg.

He has a history of prostate cancer, gout, type 2 diabetes mellitus, and asthma; a 20-year smoking history and does not drink alcohol. He has no known allergies.

What is the most appropriate medication to prescribe?

A.Amlodipine

B.Diltiazem

C.Hydrochlorothiazide

D.Spironolactone

E.Valsartan

Answer:Valsartan

Explanation:

Newly diagnosed patient with hypertension who has a background of type 2 diabetes mellitus - add an ACE inhibitor or an angiotensin receptor blocker regardless of age

Important for meLess important

This patient has newly diagnosed hypertension with a background of type two diabetes mellitus. They need to be prescribed either an ACE inhibitor or an angiotensin receptor blocker (ARB). Valsartan is an ARB; thus, is appropriate to prescribe first-line in this patient. These agents are also preferred in patients <55 years old.

Dihydropyridine calcium channel blockers such as amlodipine are considered first-line in patients older than 55, or patients without type two diabetes mellitus. They can also be used as second or third-line agents in patients with type two diabetes mellitus who have not responded to initial therapy with ACE inhibitors.

Contrastingly, non-dihydropyridine calcium channel blockers such as diltiazem are not considered effective first-line management of hypertension in any patient. They are used second-line or third-line when other therapies fail to adequately control hypertension.

Hydrochlorothiazide is not considered first-line management for hypertension in any patient. It can be offered second-line if a patient's blood pressure is not controlled with an ACE inhibitor or ARB.

Spironolactone is reserved for patients with resistant hypertension (not responding to three different agents at a maximally tolerated dose) or patients with congestive cardiac failure.

Question:

A 25-year-old presents to the GP with cyclical pelvic pain and associated painful bowel movements. She has previously been seen by gynaecology for these symptoms which had improved with paracetamol and mefenamic acid initially, however, she states that the pain has returned and she would like to try an alternative treatment. She is not currently pregnant but she expresses a wish to try for a family sometime in the next couple of years.

Out of those listed below, what would be the next most appropriate management for this condition?

A.Buscopan

B.Combined oral contraceptive pill

C.Injectable depot-provera

D.Opioid analgesia

E.Referral for laparoscopic excision or ablation

Answer:Combined oral contraceptive pill

Explanation:

If analgesia doesn't help endometriosis then the combined oral contraceptive pill or a progestogen should be tried

Important for meLess important

This patient is presenting with symptoms suggestive of endometriosis which are not responding to simple analgesia with paracetamol and NSAIDs. Whilst a re-referral to gynaecology may be appropriate in this patient due to the recurrence of symptoms and possible pelvic/bowel involvement, she can be offered further treatment in the interim from primary care. This should be in the form of hormonal treatment.

Combined oral contraceptive pill is therefore the correct answer. This patient would benefit from hormonal treatment for her symptoms, and this can be with a combined oral contraceptive or any of the progestogen options. She wishes to start a family soon, therefore a hormonal option that can quickly be reversed is most suitable.

Buscopan is not the most appropriate treatment here. Whilst it may have some effect in reducing pelvic symptoms during menstruation, it is not a treatment for endometriosis. It may be used to relieve the cramps associated with irritable bowel syndrome.

Injectable depot-provera is not the most appropriate treatment here. Whilst this would be an appropriate treatment for her symptoms, she has expressed the desire to start a family during the next year and therefore a hormonal option that does not convey a delay to return of fertility would be most appropriate here.

Opioid analgesia would not be appropriate. This is not a recommended treatment for endometriosis and carries the risk of side effects and the possibility of dependence. It would not be appropriate to start this as a long-term solution to her symptoms.

Question:

A 37-year-old gentleman presents to the general practitioner (GP) with a four month history of heel pain. He reports that the pain is worse when walking to and from work. The gentleman has a body mass index (BMI) of 29 kg/m² and is currently under investigation for diabetes mellitus. His past medical history includes: asthma, generalised anxiety disorder and Peyronie's disease.

Which of the following is the best initial step regarding the heel pain?

A.Prescribe ibuprofen and refer to orthopaedics

B.Prescribe ibuprofen and refer to local orthotics unit

C.Suggest weight loss, simple stretch exercises and resting the heel

D.Suggest simple stretch exercises and review in 6 weeks

E.Suggest simple stretch exercises, prescribe ibuprofen and review in 6 weeks

Answer:Suggest weight loss, simple stretch exercises and resting the heel

Explanation:

Plantar fasciitis is best managed initially with rest, stretching and weight loss if overweight

Important for meLess important

Initially, plantar fasciitis should be managed conservatively with rest and the management of any precipitating factors, including weight loss. Stretching exercises are also recommended as first line therapy in combination with rest. These exercises should be conducted three times per day and are aimed at the plantar fascia and the Achilles tendon.

Orthotics and NSAIDs are appropriate in the management of plantar fasciitis, however should not be called upon before the measures listed in the paragraph above. Additionally, the patient has asthma and therefore an ibuprofen prescription would be inappropriate.

Whilst a 6 week review is an appropriate period of time to review any changes to a patient's pain, the options including a 6 week review do not mention weight loss - and therefore they are incorrect.

The best initial step must include weight loss given the patient's BMI of 29.

Question:

An 8-month-old female is noticed by her mother to be unresponsive while in the supermarket. A first responder trained in basic life support is present and proceeds to assess the infant while the supermarket manager calls for an ambulance. As part of the assessment, the responder checks the infant's pulse.

Which sites should the responder check for this assessment?

A.Brachial and carotid

B.Brachial and femoral

C.Carotid and femoral

D.Radial and carotid

E.Radial and femoral

Answer:Brachial and femoral

Explanation:

Paediatric BLS: In an infant, the appropriate places to check for a pulse are the brachial and femoral arteries

Important for meLess important

When assessing for a pulse, a central pulse should be checked. This is due to the increased reliability of pulse being detected in central areas as peripheral pulses are weaker and harder to feel (which can be further exacerbated if the patient is unwell and has peripheral shutdown). In infants, due to their short necks, the carotid pulse is often difficult to palpate and the femoral pulse is preferred. According to basic life support (BLS) guidelines, infants (children under 1 year) should have femoral and brachial pulse assessed. The carotid pulse may only be used in children (over 12 months old), meaning all answers including this are incorrect.

Brachial and carotid pulse is incorrect as the carotid pulse may only be used in children (over 12 months old) and the vignette shows an 8-month-old infant.

Carotid and femoral pulse is incorrect as the carotid pulse may only be used in children (over 12 months old) - inappropriate as the infant described is under this age.

Radial and carotid pulse is incorrect as the carotid pulse may only be used in children (over 12 months old).

Radial and femoral pulse is incorrect as a radial pulse is a peripheral pulse and is less accurate than the other more centrally located pulse points described (such as brachial pulse).

Question:

You are asked to review a 76-year-old woman with metastatic bowel cancer. She was admitted four days prior with abdominal pain and has not opened her bowels for the last six days.

She is receiving diamorphine via a syringe driver. However, she is still having intermittent severe abdominal pain.

Which of the following medications should be added to her syringe driver?

A.Metoclopramide

B.Codeine phosphate

C.Midazolam

D.Gabapentin

E.Hyoscine butylbromide

Answer:Hyoscine butylbromide

Explanation:

Syringe drivers: respiratory secretions & bowel colic may be treated by hyoscine hydrobromide, hyoscine butylbromide, or glycopyrronium bromide

Important for meLess important

This patient is experiencing colicky pain secondary to mechanical obstruction caused by bowel cancer.

Hyoscine butylbromide (also known as scopolamine butylbromide) is the correct answer in this case. It is an antimuscarinic drug that reduces smooth muscle contractions. It is therefore useful in the treatment of colicky pain.

Metoclopramide is incorrect as it is a prokinetic antiemetic. It will therefore worsen the pain by promoting bowel contraction against the obstruction.

Codeine phosphate is incorrect as the patient is already receiving diamorphine via her syringe driver. Further analgesia should be added by increasing the dose of diamorphine, not adding another opioid.

Midazolam is incorrect as it is a sedative which would not address the underlying cause of her symptoms.

Gabapentin is incorrect at it is not indicated for the treatment of pain due to gastrointestinal obstruction.

Question:

A 70-year-old woman presents to the rheumatology clinic following a referral from her general practitioner. She has been suffering from a macular rash over her back and shoulders and has red papules over the extensor surfaces of her fingers.

On examination, these features are still present. Additionally, she is describing weakness and pain in both of her shoulders along with difficulty swallowing.

She has an unremarkable past medical history and she is a smoker.

Given the most likely diagnosis, what further investigations are necessary for this patient?

A.Antinuclear antibodies

B.Electromyogram

C.Fundoscopy

D.Malignancy screen

E.Skin biopsy

Answer:Malignancy screen

Explanation:

In patients with a new diagnosis of dermatomyositis, urgent malignancy screen is needed

Important for meLess important

The correct answer is malignancy screen. This patient is presenting with the classical signs and symptoms of dermatomyositis, an inflammatory disorder causing symmetrical, proximal muscle weakness and characteristic skin lesions. She has a macular rash over her back and shoulders and red papules over the extensor surfaces of her fingers, coupled with proximal muscle weakness in her upper limbs and dysphagia.

This condition is mostly idiopathic, but it has been associated with underlying malignancy in around a quarter of patients, especially in older age groups. It has been associated with breast, ovarian, lung, and haematologic cancers, as well as nasopharyngeal cancers in Asian populations. Hence, screening for an underlying malignancy, usually entailing a total-body CT scan, is usually performed following a diagnosis of dermatomyositis.

Antinuclear antibodies are common in around 80% of the patients with dermatomyositis, but they are very unspecific. They can be raised due to multiple autoimmune conditions such as lupus or antiphospholipid syndrome, so they should not be used as a diagnostic investigation.

An electromyogram is incorrect. This exam is not essential for the diagnosis of the condition. A more important investigation would be to screen for an underlying malignancy.

Fundoscopy is incorrect. This patient has signs and symptoms of dermatomyositis. There are no features involving the eye itself (e.g. vision changes, watering, redness).

Skin biopsy is incorrect. Skin biopsies can be used in patients that do not present with the classic signs and symptoms of dermatomyositis.

Question:

A 62-year-old female with a history of mitral regurgitation attends her dentist, who intends to perform dental polishing. She is known to be penicillin allergic. What prophylaxis against infective endocarditis should be given?

A.Oral doxycycline

B.Oral erythromycin

C.No antibiotic prophylaxis needed

D.Oral ofloxacin

E.Oral clindamycin

Answer:No antibiotic prophylaxis needed

Explanation:

Antibiotic prohylaxis to prevent infective endocarditis is not routinely recommended in the UK for dental and other procedures

Important for meLess important

The 2008 NICE guidelines have fundamentally changed the approach to infective endocarditis prophylaxis

Question:

An 8-year-old girl presents with a swollen face and legs. Her parents inform you that the swelling of the face occurred a few days ago and then progressed to swelling of the legs yesterday. On examination there is dependent oedema of the face and legs. Her blood pressure is 90/65 mmHg. Urine dipstick shows 3+ proteinuria.

What is the most likely diagnosis?

A.Focal-segmental glomerulonephritis

B.Minimal change glomerulonephritis

C.Membranous glomerulonephritis

D.IgA nephropathy

E.Diabetic nephropathy

Answer:Minimal change glomerulonephritis

Explanation:

Heavy proteinuria and gross oedema are suggestive of nephrotic syndrome. A heavy proteinuria can result in hypoalbuminaemia. Hypoalbuminaemia results in a decreased plasma oncotic pressure thereby resulting in increased fluid in the interstitial space and oedema.

In children, minimal change glomerulonephritis is the commonest cause of nephrotic syndrome.

Question:

A 30-year-old woman presents with abdominal pain that is associated with alternating diarrhoea and constipation. Which one of the following symptoms is least consistent with a diagnosis of irritable bowel syndrome?

A.Feeling of incomplete stool evacuation

B.Waking at night due to the pain

C.Abdominal bloating

D.Faecal urgency

E.Passage of mucous with stool

Answer:Waking at night due to the pain

Explanation:

Pain which wakes a patient at night is not a feature that would be expected in irritable bowel syndrome.

Question:

A 62-year-old woman who is known to have chronic kidney disease, atrial fibrillation and hypertension is admitted to the Emergency Department following a collapse. An ECG is taken:

© Image used on license from Dr Smith, University of Minnesota

Which one of the following is most likely to explain the ECG changes?

A.Hypocalcaemia

B.Digoxin toxicity

C.Beta-blocker overdose

D.Hyperkalaemia

E.Hypokalaemia

Answer:Hyperkalaemia

Explanation:

This ECG has a number of features consistent with severe hyperkalaemia. There is a near sinusoidal pattern, with very wide QRS complexes, bizarre deep T-waves in V1 and V2 and peaked T-waves in V4 and V5.

Question:

A 71-year-old woman presents with palpitations and 'lightheadedness'. An ECG shows that she is in atrial fibrillation with a rate of 130 / min. Her blood pressure is normal and examination of her cardiorespiratory system is otherwise unremarkable. Her past medical history includes well controlled asthma (salbutamol & beclomethasone) and depression (citalopram). Her symptoms have been present for around three days. What is the most appropriate medication to use for rate control?

A.Diltiazem

B.Sotalol

C.Digoxin

D.Atenolol

E.Amiodarone

Answer:Diltiazem

Explanation:

Her history of asthma is a contraindication to the prescription of a beta-blocker. NICE therefore recommend a rate-limiting calcium channel blocker.

Consideration should also be given to antithrombotic therapy.

Question:

A 57 year old woman presents with a 2 month history of symptoms and signs suggestive of rheumatoid arthritis. These include bilateral swelling of her metacarpophalangeal joints, early morning stiffness of around an hour's duration and a raised nodule on the extensor surface of her left forearm.

Her rheumatoid factor is positive. What is the most appropriate initial therapy for her arthritis?

A.Steroids, diclofenac and a proton-pump inhibitor

B.Methotrexate and paracetamol

C.Methotrexate plus a short course of oral prednisolone

D.Anakinra

E.Etanercept plus methotrexate

Answer:Methotrexate plus a short course of oral prednisolone

Explanation:

In newly-diagnosed active rheumatoid arthritis, NICE recommend that disease-modifying therapy is started as soon as possible, with methotrexate (or sulfasalazine or leflunomide) and oral steroids. Steroids (oral or intra-articular) can be used to alleviate flares, and patients are often also prescribed paracetamol for pain relief.

Question:

A 40-year-old lady who is currently an informal inpatient at a mental health hospital is being considered for electroconvulsive therapy (ECT). She has never had this treatment before.

Which of the following is an indication for ECT?

A.Personality disorder

B.Catatonia

C.Treatment resistant seizures

D.Depression with a PHQ-9 score of 13

E.Anorexia nervosa

Answer:Catatonia

Explanation:

An indication for electroconvulsive therapy includes treatment-resistant depression

Important for meLess important

Indications for ECT include the following:

treatment resistant severe depression

manic episodes

an episode of moderate depression know to respond to ECT in the past

life threatening catatonia

Patient health questionnaire-9 (PHQ-9) is used by GP's as a tool to characterise severity of depression:

0-4 no depression identified

5-9 mild depression

10-14 moderate depression

15-19 moderately severe depression

20-27 severe depression

To meet the criteria for ECT the patient must have severe treatment resistant depression. The decision to opt for ECT would not be done on the PHQ-9 alone.

Question:

A 15-year-old comes in with right iliac fossa pain. She describes the pain as starting a few hours earlier when she was playing hockey and the pain has progressively got worse. She is Rovsing's sign negative. An USS is done and free pelvic fluid is seen with a whirlpool sign. What is the most likely diagnosis?

A.Ruptured ovarian cyst

B.Kidney stone

C.Mittelschmerz pain

D.Appendicitis

E.Ovarian torsion

Answer:Ovarian torsion

Explanation:

The whirl pool sign in this case refers to an ovarian torsion, it may also be seen when bowel twists on itself causing a volvulus. Other features you may see on the ultrasound scan is an enlarged ovary seen in the midline with free pelvic fluid. If a doppler scan is also done, you may see little on no ovarian venous flow with absent or reversed diastolic flow.

Rovsing's sign refers to when palpation of the left iliac fossa causes increased tenderness in the right iliac fossa. It may be seen in cases of appendicitis.

Question:

A 48-year-old woman presents with a 4-month history of joint pain in her right hand and a 'sausage-like finger'. She reports her only medication is prescription coal tar shampoo.

She is tender over the right distal interphalangeal joints with mildly swollen fingers. Her right index finger is diffusely swollen.

Observations show a heart rate of 80 bpm, blood pressure of 128/89mmHg, a temperature of 36.7ºC, and 99% oxygen saturation on room air.

She has an x-ray of her hand performed.

What would the most likely findings on imaging be?

A.Erosions with overhanging edges ('rat-bite' erosions)

B.Joint effusion only

C.Osteophytes, loss of joint space, and subchondral sclerosis

D.Periarticular erosions with bone resorption

E.Widened, bulky physeal plates and irregularity

Answer:Periarticular erosions with bone resorption

Explanation:

Inflammatory arthritis involving DIP swelling and dactylitis points to a diagnosis of psoriatic arthritis

Important for meLess important

This patient presents with swelling and pain of the distal interphalangeal joints and dactylitis, which is consistent with a diagnosis of psoriatic arthritis. This diagnosis is strengthened her use of a prescription coal tar shampoo, likely to manage psoriatic lesions on her scalp. Severe psoriatic joint disease causes a 'pencil-in-cup' appearance of the interphalangeal joints on X-ray, characterised by periarticular erosions and bone resorption.

Erosions with overhanging edges ('rat-bite' erosions) are a feature of gout and are associated with tophi. This condition typically affects the 1st metatarsal joint in the foot.

Joint effusion can occur in the early stages of septic arthritis. Septic arthritis must be ruled out for any hot, painful swollen joint, as early recognition is key to saving the joint. Whilst this patient has dactylitis, there is no indication of systemic illness, and the swelling is reported to have been unchanged for a significant amount of time.

Osteoarthritis is a non-inflammatory degenerative arthritis that leads to joint pain and worsens with age. It is not associated with dactylitis. X-ray features are typically loss of joint space, osteophytes, and subchondral sclerosis.

Widened, bulky physeal plates and irregularity are seen in osteopenia. This is due to the disorganisation of bone remodelling and lack of bone mineralisation. It is not associated with dactylitis.

Question:

A 30-year-old man attends his local emergency department following a head injury while playing football where he accidentally hit his head off the goalpost.

He remembers the events preceding the injury and is certain there was no loss of consciousness. He vomited once at the time and once in the emergency department waiting room.

He has no past medical history and takes no regular medications.

On examination, his GCS is 15/15 and no focal neurological deficit is found. His pupils are equal and reactive to light. There are no signs of a basal skull fracture.

What is the most appropriate course of action?

A.AP and lateral skull X-rays

B.Admit for 12 hour observation period and then discharge home with a head injury advice sheet

C.CT head within 1 hour

D.CT head within 8 hours

E.Discharge home with a head injury advice sheet

Answer:CT head within 1 hour

Explanation:

Following a head injury, more than 1 episode of vomiting is an indication for a CT head within 1 hour

Important for meLess important

The correct answer is CT head within 1 hour . NICE has produced guidance on when to request imaging for patients following a head injury. This patient has vomited twice, and therefore meets the criteria for a CT head within 1 hour.

AP and lateral skull X-rays is incorrect. Skull X-rays are rarely used as a CT head will allow for imaging of the brain parenchyma as well as identifying any skull fractures.

Admit for 12 hours observation period and then discharge home with a head injury advice sheet is incorrect. This patient warrants imaging of his head. However, it is important to note that head injury advice sheets are often given out to patients in the emergency department if they do not require admission; these sheets highlight symptoms that they should be aware of in the period following a head injury.

CT head within 8 hours is also incorrect - this patient warrants a CT head within 1 hour.

It is inappropriate to discharge home with a head injury advice sheet as this patient requires imaging according to the NICE guidance.

Question:

A 27-year-old woman is referred to orthopaedics. Three years ago she had chemotherapy for non-Hodgkin's lymphoma. Follow up scans to date have shown no evidence of any disease recurrence. For the past two months, she has been experiencing gradually increasing pain in her right hip which is worse on exercising. On examination, passive movement of the hip is painful in all directions, especially internal rotation. An x-ray ordered by her GP has been reported as normal.

What is the most likely diagnosis?

A.Trochanteric bursitis

B.Avascular necrosis of the femoral head

C.Primary hyperparathyroidism

D.Metastatic deposits

E.Hypoparathyroidism

Answer:Avascular necrosis of the femoral head

Explanation:

Previous chemotherapy is a significant risk factor for avascular necrosis

Important for meLess important

Previous chemotherapy is a significant risk factor for avascular necrosis.

Initial x-rays are often normal in patients with avascular necrosis, but it would be unlikely that metastatic deposits significant enough to cause pain would not be shown.

Question:

A 64-year-old lady presents to the GP with urinary incontinence. On further questioning, she notes that the symptoms of incontinence are worst after she coughs or sneezes. She has had 4 children, all through vaginal delivery, the last of which was 30 years ago. These symptoms have been worsening for the last 6-weeks.

Given this woman's presentation, which of the following investigations should be ordered?

A.Post-void residual volume

B.Cystoscopy

C.Urinary flow rate assessment

D.Urinalysis

E.Ultrasound of the kidneys

Answer:Urinalysis

Explanation:

In patients with urinary incontinence, make sure to rule out a UTI and diabetes mellitus

Important for meLess important

This question is asking about the investigation of a 64-year-old woman with urinary incontinence. In this situation she is likely suffering from stress incontinence, however, a urinalysis should be performed in order to exclude diabetes or a urinary tract infection that could be the cause of, or worsening her symptoms.

A post-void residual volume is used in cases of voiding dysfunction or in patients in whom overflow incontinence is suggested. Features that would indicate this are a full bladder on examination after voiding. These symptoms are more likely in elderly males as they are associated with prostate problems.

Cystoscopy is not used in the first line investigation of women with urinary incontinence until further investigations have been performed. This would then be indicated in patients with suspected bladder lesions.

Urinary flow rate assessment is used in the assessment of elderly men with symptoms as this is more likely due to prostate problems, or in those patients with neurological symptoms.

Ultrasound of the kidneys is rarely used in the assessment of patients with urinary incontinence but is indicated in certain cases such as those where renal impairment is thought to be occurring. For example in cases where urea and electrolyte blood tests showed reduced renal function.

Question:

A 74-year-old man has been brought to the GP by his son who is worried about his memory. Over the last year, there has been a steady decline in his memory and he is now forgetting to pay his bills and is leaving the cooker on. As well as this, he has had changes in his gait, smaller strides, and instability. Over the last 3 months, he has been struggling with using the toilet. He has unintentionally emptied his bladder frequently. His past medical history consists of an ischaemic stroke 4 years ago and he takes clopidogrel and atorvastatin.

What is the most likely diagnosis?

A.Alzheimer's disease

B.Dementia with Lewy bodies

C.Normal pressure hydrocephalus

D.Parkinson's disease

E.Vascular dementia

Answer:Normal pressure hydrocephalus

Explanation:

Urinary incontinence + gait abnormality + dementia = normal pressure hydrocephalus

Important for meLess important

Normal pressure hydrocephalus is correct. This patient has the usual triad of dementia, gait abnormalities, and urinary incontinence making normal pressure hydrocephalus the most likely diagnosis.

Alzheimer's disease is incorrect. The main presenting complaint in Alzheimer's disease this early on would be memory problems. Gait abnormalities and urinary incontinence are not usually seen, especially this early on. Since the usual triad of dementia, gait abnormalities, and urinary incontinence is present, normal pressure hydrocephalus is the more likely diagnosis.

Dementia with Lewy bodies is incorrect. There is no mention of visual hallucinations or fluctuating cognition, making this diagnosis less likely. As well as this, there would be Parkinsonian-type symptoms such as a unilateral tremor and rigidity alongside the gait abnormalities. Urinary incontinence is not usually seen in dementia with Lewy bodies. Since the usual triad of dementia, gait abnormalities, and urinary incontinence is present, normal pressure hydrocephalus is the more likely diagnosis.

Parkinson's disease is incorrect. This patient would have the key features of Parkinson's disease: a unilateral tremor, rigidity, bradykinesia, and postural instability. Urinary incontinence would not be seen this early on if this were to be Parkinson's disease. Since the usual triad of dementia, gait abnormalities, and urinary incontinence is present, normal pressure hydrocephalus is the more likely diagnosis.

Vascular dementia is incorrect. Although this patient has recently had a stroke, the decline in cognitive function would be stepwise, unlike this patient whose decline has been progressive. A diagnosis of vascular dementia would also not explain the urinary incontinence this patient has been experiencing. Since the usual triad of dementia, gait abnormalities, and urinary incontinence is present, normal pressure hydrocephalus is the more likely diagnosis.

Question:

A 5-year-old girl is brought to the GP by her mother as she has had a very loud, harsh cough for the last 2 weeks, and has been more lethargic than usual. She appears systemically well, but you witness 2 coughing fits during your consultation, in which the child appears distressed and struggles to take breaths in, making a loud harsh inspiratory noise between coughing fits. The patient has no known allergies or past medical history, but her vaccination record is unclear, having moved to the UK from abroad two years ago. Her observations reveal a fever at 37.5ºC.

What is the most appropriate management plan?

A.No treatment needed but report to Public Health England

B.Send to emergency department

C.Prescribe azithromycin and report to Public Health England

D.Prescribe azithromycin and review in 1 week

E.Prescribe salbutamol nebulisers

Answer:Prescribe azithromycin and report to Public Health England

Explanation:

Whooping cough is a notifiable disease

Important for meLess important

This question is testing your management of whooping cough. This is a notifiable disease and therefore Public Health England must be informed. Furthermore, NICE guidelines state that whooping cough can be treated with oral azithromycin within the first 21 days of symptoms. If the patient had presented later than this, then no antibiotic therapy would have been needed. Salbutamol nebulisers would not be appropriate as antibiotic treatment is needed.

Question:

A young couple enters the general practice. The wife explains how her partner has been acting out of character, specifically, checking on their daughter subtly throughout the day and even during the night. On average, he would check ten to twenty times. When asked, he explains that last month he nearly lost his daughter in the park where it was a scary ordeal and he repeatedly relives what happened in his mind. The husband says that he does not go to the park anymore, feels anxious and has difficulty sleeping. There is no past medical or psychiatric history of note.

Which of the following is the most likely diagnosis?

A.Generalised anxiety disorder (GAD)

B.Obsessive compulsive disorder (OCD)

C.Panic disorder

D.Paranoid delusion disorder (PDD)

E.Post traumatic stress disorder (PTSD)

Answer:Post traumatic stress disorder (PTSD)

Explanation:

Common features of PTSD

re-experiencing e.g. flashbacks, nightmares

avoidance e.g. avoiding people or situations

hyperarousal e.g.hypervigilance, sleep problems

Important for meLess important

With this history, the most likely is diagnosis is PTSD. An incident must occur which elicit the following features; flashbacks, hyperarousal and avoidance. For a diagnosis, symptoms must persist for over a month.

GAD and OCD could present in a similar fashion with constant anxiety and the behaviours exhibited. GAD tends to slowly progress starting in the teenage years. OCD can develop in the early 20's but would be less likely than PTSD to develop straight after the incident in the park.

Panic disorder presents differently, it occurs when the sympathetic system is stimulated causing an intense episode of fight or flight when there is no matching stimulus.

PDD is a self-referential delusion, the patient does not hold fixed false beliefs about himself.

Question:

A 75-year-old man with a background of type 2 diabetes mellitus and peripheral artery disease is commenced on ramipril for newly diagnosed stage 2 hypertension. Repeat urea & electrolytes (U&Es) are performed 10 days later.

The results of which are shown in the tables below.

Before commencing ramipril:

Na+ 141 mmol/L (135 - 145)

K+ 4.6 mmol/L (3.5 - 5.0)

Bicarbonate 24 mmol/L (22 - 29)

Urea 3.2 mmol/L (2.0 - 7.0)

Creatinine 78 µmol/L (55 - 120)

Ten days later:

Na+ 140 mmol/L (135 - 145)

K+ 4.8 mmol/L (3.5 - 5.0)

Bicarbonate 26 mmol/L (22 - 29)

Urea 8.8 mmol/L (2.0 - 7.0)

Creatinine 128 µmol/L (55 - 120)

What is the most likely reason for this deterioration in renal function?

A.Bilateral renal artery stenosis

B.Dehydration

C.Diabetic nephropathy

D.Glomerulonephritis

E.Hypertensive nephropathy

Answer:Bilateral renal artery stenosis

Explanation:

After starting an ACE inhibitor, significant renal impairment may occur if the patient has undiagnosed bilateral renal artery stenosis

Important for meLess important

Bilateral renal artery stenosis should always be considered in a patient with risk factors for, and evidence of, atherosclerotic vascular disease. In particular, if they are diagnosed later in life with hypertension and have an acute significant drop in renal function following the commencement of an ACE inhibitor.

This acute deterioration in renal function is not in keeping with more longer-term conditions affecting the kidneys such as diabetic and hypertensive nephropathy.

Although possible, there is no evidence from the information given that the patient has glomerulonephritis or has significant pre-renal acute kidney injury from dehydration.

Question:

A 5-year-old girl is brought in by her mother. Mum reports she started to feel unwell two days ago, complaining of a sore throat and headache. Overnight, she developed a temperature and vomited once. This morning she has broken out in a rash all over her body, this has spread from her chest where it started. On examination, she has a temperature of 38.5ºC, heart rate 130 beats per minute, she looks flushed and has an erythematous rash over her body which feels like sandpaper and blanches with pressure. There are palpable cervical lymph nodes when you examine her neck and her tongue has a white coating over it. What is the most likely diagnosis?

A.Parvovirus B19

B.Varicella

C.Measles

D.Adenovirus

E.Scarlet fever

Answer:Scarlet fever

Explanation:

This child has Scarlet fever. There is a typical incubation period of 2 to 4 days and typically presents with fever, tonsillitis, malaise and rash. Two specific features of Scarlet fever are 'strawberry tongue' which is when the tongue is covered with a white coat through which red papillae may be seen. Later, the white covering disappears, leaving the tongue with a beefy red appearance. The typical rash in this condition starts on the torso before spreading all over the body- it has a typical rough 'sandpaper' like texture. Varicella causes a typical vesicular rash. In measles, the prodromal symptoms are typically coryza, conjunctivitis and high fever before the rash appears- usually starting on the head or neck. Parvovirus B19 causes 'slapped cheek syndrome' with bright red rash seen on both cheeks, Adenoviruses can cause lots of different infections such as respiratory infections, gastroenteritis or conjunctivitis. There is no specific associated rash.

Question:

A 35-year-old woman with autosomal dominant polycystic kidney disease (ADPKD) presents to the clinic with generalised body swelling, weakness, and pallor. Important laboratory investigations of the patient are attached.

Na+ 136 mmol/L (135 - 145)

K+ 5.5 mmol/L (3.5 - 5.0)

Bicarbonate 14 mmol/L (22 - 29)

Urea 10 mmol/L (2.0 - 7.0)

Creatinine 310 µmol/L (55 - 120)

Calcium 1.5 mmol/L (2.1-2.6)

What is the first-line treatment option that will slow the rate of disease progression in this patient?

A.Clindamycin

B.Enalapril

C.Losartan

D.Tolvaptan

E.Unilateral nephrectomy

Answer:Tolvaptan

Explanation:

Tolvaptan has been shown to reduce the rate of CKD progression in ADPKD (and is approved by NICE)

Important for meLess important

History of pallor, oedema, and weakness in this patient with raised urea, creatinine, and hypocalcemia suggests that she has already developed chronic kidney disease (CKD). Tolvaptan is a vasopressin receptor 2 antagonist and is the first-line drug to slow the progression of CKD and renal insufficiency in patients with ADPKD. Tolvaptan is given to patients with ADPKD who have CKD stage 2 or 3 and is rapidly progressive.

Losartan is an angiotensin II receptor antagonist that has no role in reducing the rate of disease progression in ADPKD, although may be used to treat hypertension secondary to ADPKD.

Enalapril is an angiotensin-converting enzyme (ACE) inhibitor that has a renoprotective effect, but it is not the first-line drug to reduce the rate of CKD progression in ADPKD.

There is no role for unilateral nephrectomy in the treatment of ADPKD given the bilateral involvement of kidneys in the disease. Removing one kidney will not slow the CKD progression for this patient.

Clindamycin is an antibiotic that is used to treat the recurrent cyst infection that is common in ADPKD, but it has no role in slowing the CKD progression.

Question:

A 72-year-old woman presents with sudden-onset back pain that improves with lying down.

She has Crohn's disease, for which she has just finished a course of steroids following a flare, went through menopause 20 years ago, and has not had symptoms of it since. Her BMI is 18 kg/m².

Blood tests are taken and an x-ray confirms a vertebral compression fracture. A FRAX® score is calculated to be 14% and a dual-energy x-ray absorptiometry (DEXA) scan is arranged which shows the following:

Calcium 2.4 mmol/L (2.1-2.6)

Vitamin D 15.4 ng/ml (≥20.0)

T-score -2.8

Given these results, what is the most appropriate next step in her management?

A.Hormone replacement therapy (HRT) and alendronic acid

B.Prednisolone and zoledronic acid

C.Vitamin D and calcium supplement then alendronic acid

D.Vitamin D and calcium supplements then zoledronic acid

E.Vitamin D supplements then alendronic acid

Answer:Vitamin D supplements then alendronic acid

Explanation:

When starting bisphosphonate treatment for osteoporosis, calcium should only be prescribed if dietary intake is inadequate

Important for meLess important

Vitamin D supplements then alendronic acid is correct. This patient has osteoporosis. She has multiple risk factors (age, low BMI, steroid use) and has presented with a fragility fracture. The DEXA T-score of less than -2.5 indicates the requirement for bone-sparing medication, for which alendronic acid is first-line. Her serum calcium level is normal, while her vitamin D level is low, so only vitamin D requires supplementation. This should be done before starting bisphosphonates to prevent hypocalcaemia, as bisphosphonates inhibit bone resorption. Calcium should not be supplemented when dietary intake is adequate so that hypercalcaemia is avoided.

Hormone replacement therapy (HRT) and alendronic acid is incorrect. HRT is unlikely to benefit someone having gone through menopause a long time ago, especially without any complaint of menopause-associated symptoms. It is no longer recommended for primary or secondary prevention of osteoporosis due to concerns about increased rates of cardiovascular disease and breast cancer unless the woman is suffering from vasomotor symptoms. This option also does not have any vitamin D supplement which is essential due to her deficiency.

Prednisolone and zoledronic acid is incorrect. Prednisolone is an indication to prescribe bisphosphonates if taken for 3 months or longer and is not a treatment for osteoporosis. Zoledronic acid is second-line and should only be prescribed under specialist care. There is also no vitamin D prescribed.

Vitamin D and calcium supplement then alendronic acid is incorrect. The patient’s calcium level is within the normal range so her dietary intake is adequate and supplementation is unnecessary. Supplementation in such a patient may result in hypercalcaemia.

Vitamin D and calcium supplements then zoledronic acid is incorrect. Calcium should only be prescribed if dietary intake is inadequate. Zoledronic acid is second-line and should only be prescribed under specialist care.

Question:

A 66-year-old man is referred to the endocrinology outpatient department with resistant hypertension and hypokalaemia. He is asymptomatic. He is on regular ramipril, amlodipine, indapamide and doxazosin. He has a further past medical history of hypercholesterolaemia. He has smoked five cigarettes daily for thirty years and drinks 2-3 bottles of wine per week. He is a non-executive director of a large multinational company.

His observations are heart rate 76 beats per minute, blood pressure 181/88 mmHg, respiratory rate 12/minute, oxygen saturations 97% on room air. He is apyrexial and appears clinically well. An examination is unremarkable other than a raised body mass index of 35.2 kg/m².

Blood tests:

Hb 141 g/L Male: (135-180)

Female: (115 - 160)

Platelets 222 \* 109/L (150 - 400)

WBC 6.2 \* 109/L (4.0 - 11.0)

Na+ 138 mmol/L (135 - 145)

K+ 2.9 mmol/L (3.5 - 5.0)

Urea 4.6 mmol/L (2.0 - 7.0)

Creatinine 89 µmol/L (55 - 120)

CRP 3 mg/L (< 5)

Cortisol 589 nmol/L (119 – 618)

Aldosterone: renin ratio increased

A CT of the abdomen demonstrates bilateral adrenal enlargement and adrenal vein sampling demonstrates the production of excess aldosterone bilaterally.

What is the most appropriate treatment?

A.Chemotherapy

B.IV hydrocortisone

C.Radiotherapy

D.Spironolactone

E.Surgery

Answer:Spironolactone

Explanation:

Primary hyperaldosteronism: manage with spironolactone

Important for meLess important

Spironolactone is the correct answer. Primary hyperaldosteronism caused by bilateral adrenal hyperplasia is treated by a mineralocorticoid receptor antagonist such as spironolactone.

Chemotherapy is the wrong answer. The first-line treatment for bilateral adrenal hyperplasia causing primary hyperaldosteronism is a mineralocorticoid receptor antagonist such as spironolactone. If a patient had disseminated malignancy caused by an adrenal carcinoma, then this may be an option.

IV hydrocortisone is incorrect. This is the treatment for acute hypoadrenalism i.e. an Addisonian crisis. The patient's cortisol is within normal limits and he has no clinical features of hypoadrenalism.

Radiotherapy is incorrect. This type of treatment may be indicated for adrenal carcinoma. However, cancer is more likely to be a unilateral mass-like lesion, rather than bilateral diffuse enlargement.

Surgery is incorrect. This would be the correct option if the patient had a unilateral adrenal adenoma secreting excess aldosterone. This is not the case here.

Question:

A 40-year-old woman presents to your clinic complaining of a recent onset of mouth and genital ulcers, alongside a reddening of her eyes. You suspect a diagnosis of Behcet's syndrome.

What dermatological finding would most support your diagnosis?

A.Necrobiosis lipoidica

B.Erythema marginatum

C.Asteatotic eczema

D.Erythema nodosum

E.Guttate psoriasis

Answer:Erythema nodosum

Explanation:

Behcet's syndrome is associated with erythema nodosum

Important for meLess important

Behcet's syndrome is associated with various dermatological symptoms including aphthous ulcers, genital ulcers, acne-like lesions and erythema nodosum. Erythema nodosum are painful red lesions, due to inflammation of the subcutaneous fat, commonly occurring in the shins.

Erythema marginatum is a rash characterised by pink rings on the extensor surfaces, it is rare and associated with rheumatic fever.

Asteatotic eczema is also known as 'crazy paving eczema' due to its distinctive appearance, it is associated with hypothyroidism and lymphoma.

Guttate psoriasis is classically described as tear-drop lesions, seen in children and young people after streptococcal throat infections.

Question:

A 67-year-old man presents with painless frank haematuria. He recently began complaining of a mild testicular ache and describes his scrotum as a 'bag of worms'. He is a heavy smoker smoking 60 cigarettes a day for 47 years. On examination he is cachectic. His left testicle appears to have a tortuous texture. His blood reveals anaemia and polycythemia. What is the most likely diagnosis?

A.Hepatocellular carcinoma

B.Epidymo-orchitis

C.Torsion

D.Hydrocele

E.Renal cell carcinoma on the left kidney

Answer:Renal cell carcinoma on the left kidney

Explanation:

Varicocele can be a sign of malignancy due to compression of the renal vein between the abdominal aorta and the superior mesenteric artery - known as the nutcracker angle

Important for meLess important

With the history, there is a strong indication of malignancy. A mass can compress the renal vein, usually left-sided, causing a back pressure on the testicular vessels. Hence a varicocele.

Hepatocellular carcinoma is unlikely as it occurs on the right side of the body and can not compress the left renal vein.

There is nothing in the history to suggest he has torsion as he would be in agony and not tolerate an exam.

No tenderness is present in the testicle which makes it unlikely to be an epididymo-orchitis.

Nothing on the examination suggests a hydrocele as there is no swelling which transilluminates.

Question:

A 79-year-old man with a known history of mixed type dementia (Alzheimer's and vascular) is assessed in memory clinic as his family have noticed a further deterioration in his memory and cognition. His mini-mental state score is 12 and as such he is commenced on memantine.

Which of the following best describes the mechanism of action of memantine?

A.Serotonin receptor agonist

B.Dopamine receptor antagonist

C.Acetylcholinesterase inhibitor

D.Butyrylcholinesterase and acetylcholinesterase inhibitor

E.NMDA antagonist

Answer:NMDA antagonist

Explanation:

Memantine - NMDA receptor antagonist

Important for meLess important

In tackling this question it is possible to eliminate two answer easily by recognising that acetylcholinesterase and butyrylcholinesterase inhibition is characteristic of cholinesterase inhibitors, a class of drug that memantine is not part of and instead is occupied by donepezil and rivastigmine (amongst others).

From here the other answers are quite tricky in that memantine does act at both the serotonin and dopamine receptors but as an antagonist and agonist respectively rather than the options given. This leaves on one answer left, an NMDA antagonist.

Question:

A 6-week-old infant boy born at 37 weeks gestation by caesarian section is brought to his general practitioner for a routine physical examination. During the examination, the general practitioner notes that the neonate's urethral meatus is located on the ventral aspect of the penile shaft, rather than the distal glans penis.

Given this abnormal finding, what other congenital defect is this neonate at an increased risk of also having?

A.Cryptorchidism

B.Imperforate anus

C.Obstructive uropathy with a patent urachus

D.Posterior urethral valve

E.Varicocele

Answer:Cryptorchidism

Explanation:

Cryptorchidism is present in around 10% of patients with hypospadias

Important for meLess important

The examination finding of a urethral meatus on the ventral aspect of the neonate’s penis is consistent with hypospadias, a congenital defect caused by incomplete fusion of the urethral folds embryologically.

The correct answer is cryptorchidism, otherwise known as undescended testis, as approximately 10% of neonates with hypospadias also have cryptorchidism. This reflects an underlying defect in embryological urogenital migration thought to be associated with endocrine disturbances, such as low serum androgens, during pregnancy.

Imperforate anus is incorrect, as this a condition in which neonates are born without a patent anus, and this is not associated with hypospadias. Furthermore, neonates with an imperforate anus are unable to meconium, stool, or flatus, meaning that this condition would likely have been recognised very soon after birth.

Obstructive uropathy with a patent urachus is incorrect, as this is not associated with hypospadias. The urachus is an embryological passage between the bladder and umbilicus that closes at the end of the first trimester in normal development. Urethral atresia or strictures may cause obstructive uropathy, often presenting as oligohydramnios in utero.

Posterior urethral valve is incorrect, as this is not associated with hypospadias. Posterior urethral valves are associated with increased susceptibility to urinalysis tract infections (UTIs) and may be screened for via ultrasound for children presenting with atypical UTIs.

Varicocele is incorrect, as they are not associated with hypospadias. Varicoceles are associated with venous hypertension in the pampiniform venous plexus and are not a typical congenital defect.

Question:

An 84-year-old is seen on the stroke ward and a test entitled the aphasia rapid test (ART) is conducted. His family are concerned that he is getting frustrated that he cannot get his words out.

The patient is asked to follow two simple orders, to open his eyes and raise his left hand and then subsequently touch his left hand to his right ear, which he does with ease. Next he is asked to repeat three single words, which he can only do for one of the three words. Then when asked to repeat one sentence he cannot do so in a fluent manner and eventually gives up. Naming three common objects, a pen, watch and tie takes 5 minutes, but is done correctly. Finally, the patient is asked to name as many animals as possible in a minute, and names 3 animals.

What is this type of dysphasia?

A.Anomic dysphasia

B.Broca's dysphasia

C.Conductive dysphasia

D.Transcortical motor dysphasia

E.Wernicke's dysphasia

Answer:Broca's dysphasia

Explanation:

Broca's dysphasia: speech non-fluent, comprehension normal, repetition impaired

Important for meLess important

Broca’s dysphasia is the correct option as this describes a dysphasia where the speech is non-fluent because Broca’s area in the frontal lobe connects with the motor cortex to produce the movements required to articulate the words. As a result, repetition of words is also poor. Comprehension is normal in patients with frontal lobe damage, as the language comprehension centres found in the temporal lobe, Wernicke’s area, are intact.

Anomic dysphasia is incorrect as this describes a dysphasia with characteristic word finding difficulties with the use of generic fillers (e.g. “thing”) or circumlocution. People with this dysphasia are fluent, unlike in this case, which has non-fluent speech. In anomic dysphasia their comprehension is intact and repetition of words/phrases good.

Conductive dysphasia is incorrect as this dysphasia is characterised by word finding difficulties and difficulty in repeating phrases. However, people with conduction difficulties still have intact language comprehension and relatively fluent speech, unlike in this case, and the sentence structure is intact, but may lack meaning.

Transcortical motor dysphasia is incorrect, as this dysphasia presents similarly to Broca’s dysphasia, but in transcortical motor there are strong repetition skills, unlike in Broca's where repetition is poor. In the transcortical motor form speech is non-fluent and comprehension intact.

Wernicke’s dysphasia is incorrect as this results from damage to Wernicke’s area in the temporal lobe and impairs language comprehension, unlike Broca's where this is intact. In Wernicke's repetition of words and phrases is also impaired. Lastly, in Wernicke’s dysphasia speech is fluent with intact sentence structure but lacking meaning.

Question:

A 77-year-old male is recovering on the ward after being admitted with a community acquired pneumonia. He has finished a course of antibiotics and his latest chest radiograph is clear. He is currently awaiting social services input before discharge. On the morning ward round the patient complains of new symptoms of muscle pain, weakness and tiredness. He feels nauseated and has vomited once this morning. He has a past medical history of osteoarthritis, gout, type 2 diabetes, hypercholesterolaemia, atrial fibrillation and an appendicectomy as a child. He is currently taking regular paracetamol, allopurinol, metformin, simvastatin, bisoprolol and warfarin.

On examination his respiratory rate is 25/min, blood pressure is 131/85 mmHg, heart rate is 95 bpm and temperature is 36.4ºC.

Recent blood tests show:

Na+ 140 mmol/l

K+ 4.8 mmol/l

Urea 12 mmol/l

Creatinine 190 µmol/l

eGFR 26 ml/min

Creatine kinase 174 iu/l (normal range 25-195 iu/l)

CRP 12 mg/l

A recent arterial blood gas (ABG) shows:

pH 7.29

pO2 12.1 kPa

pCO2 4.4 kPa

Bicarbonate 18 mmol/l

What is the most likely cause of these symptoms and investigation results?

A.Simvastatin

B.Metformin

C.Gout

D.Pneumonia

E.Allopurinol

Answer:Metformin

Explanation:

Although rare, lactic acidosis is an important side-effect of metformin

Important for meLess important

Metformin can cause lactic acidosis in patients with impaired renal function. NICE recommend that the dose should be reviewed in patients an eGFR<45 ml/min and stopped in patients with an eGFR<30 ml/min. The patient here is on metformin and has an eGFR<30 ml/min with an ABG showing a non-hypoxic metabolic acidosis. His symptoms are also typical of metabolic acidosis.

While statins do pose a risk of rhabdomyolysis, which would also produce symptoms of muscle pain, the normal creatinine kinase excludes this. It also does not explain the abnormal ABG.

The other options are inconsistent with the presentation and blood results.

Source: NICE NG 28

Question:

A 62-year-old man asks you to look at a lesion on his face:

© Image used on license from DermNet NZ and with the kind permission of Prof Raimo Suhonen

What is the most likely diagnosis?

A.Keratoacanthoma

B.Seborrhoeic keratoses

C.Actinic keratosis

D.Basal cell carcinoma

E.Pyoderma gangrenosum

Answer:Keratoacanthoma

Explanation:

This patient should be fast-tracked to exclude a squamous cell carcinoma.

Question:

You are doing the annual review of a 72-year-old man with chronic obstructive pulmonary disease (COPD). Last year he had three exacerbations of his COPD, one of which resulted in him being hospitalised. Today his chest is clear and his oxygen saturations are 94% on room air. According to NICE guidelines, what treatment should you offer him?

A.A home supply of prednisolone and an antibiotic

B.A home supply of prednisolone

C.A home supply of an antibiotic

D.A home nebuliser

E.Home oxygen

Answer:A home supply of prednisolone and an antibiotic

Explanation:

In the 2010 NICE guidelines, there is a recommendation that patients who have frequent exacerbations of COPD should be given a home supply of corticosteroids and antibiotics. It is, of course, good practice to ask the patient to contact you if they are required to use them, at least to ensure that no further action is required. An antibiotic should be only be taken if the patient is coughing up purulent sputum.

Question:

A 24-year-old woman has a 3-year history of episodic right-sided throbbing headache which is associated with nausea and photophobia. Her symptoms are typically preceded by flashing lights in her vision. The headache usually resolves after 24 hours.

She has tried a variety of over-the-counter painkillers with limited benefits. After discussing with her GP, she has been prescribed an oral medication and has been advised to take it as soon as the headache starts, with the option to take another tablet after at least 2 hours if the headache recurs.

What is a common side-effect of taking this medication?

A.Cold hands

B.Dyspepsia

C.Rash

D.Sense of impending doom

E.Tightness of the throat and chest

Answer:Tightness of the throat and chest

Explanation:

Triptans may cause tightness of the throat and chest

Important for meLess important

This woman is exhibiting classic symptoms of a migraine with aura. The medication that she has been prescribed is a triptan, which should be taken as close to the onset of the headache (not the aura) as possible. If the headache recurs, another dose can be taken in the next 24 hours, providing there is a minimum interval of 2 hours between the 2 doses.

Tightness of the throat and chest is listed as a common side-effect of triptan use. This symptom is transient but can be very intense, and patients should be warned of this as part of the medication counselling.

Cold hands is not a recognised common side-effect of triptans. While it can be associated with vasospasm and Raynaud's phenomenon, these are rarely seen. Cold hands are more commonly associated with beta-blockers, which is used in migraine prophylaxis.

Dyspepsia is not commonly associated with triptan use. Nausea and vomiting are listed as side-effects of triptans, but it is not conclusive whether this is medication-induced, or related to the underlying migraine. Dyspepsia is more commonly seen with other acute migraine treatments such as high-dose aspirin and non-steroidal anti-inflammatory drugs.

Rash can occur with triptan use as a result of hypersensitivity reaction, but this is not commonly seen.

Sense of impending doom is not closely associated with triptan use. While anxiety is listed as an uncommon side-effect, the specific feeling of impending doom tends to be more frequently seen with adenosine (used to treat supraventricular tachyarrhythmias).

Question:

A 72-year-old male is brought to the emergency department by his daughter, who is concerned that he has become more confused recently. His daughter also states that he has had frequent falls in the past month. He has a longstanding history of alcohol excess, typically drinking 80 units per week.

You are unable to obtain a history from the patient as he is very confused and only opens his eyes to pain.

Given the likely diagnosis, what is the underlying pathophysiological mechanism?

A.Accumulation of CSF in ventricles

B.Diffuse axonal injury

C.Rupture of bridging veins

D.Rupture of middle meningeal artery

E.Ruptured cerebral aneurysm

Answer:Rupture of bridging veins

Explanation:

Elderly, alcoholic, head injury, insidiuous onset symptom - subdural haematoma

Important for meLess important

The patient's age, history of trauma, confusion and decreased consciousness all point to a diagnosis of a subdural haematoma. He also has a history of alcohol abuse, another risk factor for subdural haematomas. The most common cause of subdural haematomas is rupture of the bridging veins that cross the subdural space.

An accumulation of CSF in the ventricles is the mechanism of normal-pressure hydrocephalus. This is an important cause of insidious onset confusion in elderly people. However, it typically causes urinary incontinence and gait disturbance and there is no indication of this in this case.

Diffuse axonal injury is a type of brain injury typically caused by shearing forces from rapid acceleration-deceleration. They are most commonly caused by road traffic accidents and may result in coma.

Rupture of the middle meningeal artery is the most common cause of an extradural haematoma. This artery lies beneath the pterion, the thinnest part of the skull, making it vulnerable to injury. Extradural haematomas typically occur in younger people as a result of acceleration-deceleration trauma or a blow to the side of the head. It can also cause a lucid interval.

Subarachnoid haemorrhages typically cause a characteristic 'thunderclap' headache in the occipital area. The most common cause of a subarachnoid haemorrhage is trauma. A ruptured cerebral aneurysm is the most common cause of non-traumatic subarachnoid haemorrhages.

Question:

What are the boundaries of the 'safe triangle' for chest drain insertion?

A.Bounded by trapezius, latissimus dorsi, and laterally by the vertebral border of the scapula

B.Bounded by latissimus dorsi, pectoralis major, line superior to the nipple and apex at the axilla

C.Bounded by latissimus dorsi, serratus anterior, line superior to the nipple and apex at the axilla

D.Bounded by trapezius, deltoid, rhomboid major and teres minor

E.Bounded by trapezius, deltoid and latissimus dorsi

Answer:Bounded by latissimus dorsi, pectoralis major, line superior to the nipple and apex at the axilla

Explanation:

Question:

A 63-year-old man attends for a GP appointment and states that he has had two episodes of visible blood in his urine. One episode occurred last week and the other this morning. There was not any pain. He denies any lower urinary tract symptoms. A urinalysis shows +++ blood and is negative for all other markers. What investigation should be requested?

A.CT scan pelvis

B.Urine culture

C.IV urogram

D.Cystoscopy

E.Urinary biomarkers

Answer:Cystoscopy

Explanation:

This patient has had two episodes of painless frank haematuria. According to NICE guidelines he warrants an urgent referral on the cancer pathway due to his age and due to his presentation. He is unlikely to have a urinary tract infection as his urinalysis is negative for leukocytes and nitrites and waiting for results of a urine culture should not delay referral for further investigations.

Gold standard for bladder cancer diagnosis is cystoscopy. The European Urology Association states that cystoscopy is recommended in all patient with symptoms suggestive of bladder cancer. It cannot be replaced by cytology or by any other non-invasive test.

Ultrasound scan and CT can help to stage and appreciate extent of disease.

Urinary biomarkers are used in clinical research studies for investigation and follow-up of bladder cancer but cannot be used as a substitute for cystoscopy.

Question:

A 38-year-old woman comes to the clinic for a medication review. She was seen by the neurologists three months ago for headaches. Her headaches were regular and debilitating but short-lasting (minutes) boring pain to the right side of her face, behind her eye. She noticed associated right-sided tearing and nasal congestion, but no photophobia. The attacks had occurred over thirty times and could occur up to eight times a day. The neurologist recommended indomethacin. She would like a repeat prescription as since taking indomethacin the attacks have stopped.

What is the most likely cause of her symptoms?

A.Idiopathic intracranial hypertension

B.Migraine

C.Paroxysmal hemicrania

D.Sinus related headache

E.Tension headache

Answer:Paroxysmal hemicrania

Explanation:

Paroxysmal hemicrania is completely responsive to treatment with indomethacin

Important for meLess important

The clinical features are classic of paroxysmal hemicrania. It occurs more commonly in women and is responsive to treatment with indomethacin.

Idiopathic intracranial hypertension is more common in overweight women, but most often causes bilateral symptoms which are exacerbated by lying flat. Treatment is usually with lumbar puncture or acetazolamide rather than indomethacin.

A migraine would be expected to last for longer (hours) with associated photophobia and nausea.

Sinus related headaches cause pain around the sinuses and, they occur with an associated history of sinusitis and tend to persist whilst the sinusitis is present rather than multiple discrete episodes during the day.

A tension headache causes pressure symptoms on both sides of the forehead and is often triggered by stress, tiredness, and dehydration.

Question:

A 53-year-old man is seen in the endocrinology clinic with a 6-month history of weight gain. He also complains of excessive sweating and oily skin. There have been no recent changes to his diet and there is no history of recent illness. He has a past medical history of chronic pancreatitis and takes no regular medications.

His observations are as follows:

Temperature 36.2 ºC

Heart rate 90bpm

Blood pressure 158/90mmHg

Respiratory rate 16 breaths/min

Oxygen saturations 98% on room air

On examination, he has a protruding jaw and widened interdental spaces. Cardiovascular and abdominal examinations are unremarkable.

Given the likely diagnosis, what is the most initial investigation to consider?

A.Faecal elastase

B.Growth hormone levels

C.MRI pituitary gland

D.Oral glucose tolerance test

E.Serum IGF-1 levels

Answer:Serum IGF-1 levels

Explanation:

Serum IGF-1 levels are now the first-line test for acromegaly

Important for meLess important

This patient has symptoms of acromegaly including weight gain, increased sweating and changes to his physical appearance such as prognathism and likely increase in shoe size. Currently, NICE guidelines recommend that the first-line investigation for acromegaly is to test serum IGF-1 levels. It correlates well with growth hormone levels and has a longer half-life. Serum IGF-1 levels are highly sensitive. Therefore, a normal result can exclude acromegaly.

Faecal elastase is used to assess for exocrine deficiency in patients with chronic pancreatitis. However, this patient is presenting with symptoms of acromegaly, for which, faecal elastase is not used in the diagnosis.

Serum growth hormone levels are not recommended routinely. This is because their release is episodic with a short half-life and is more likely to give inaccurate measurements.

An MRI of the pituitary gland is warranted to exclude a pituitary adenoma causing excess growth hormone release. However, it is not the most initial test to consider. Furthermore, without the presence of headache or visual symptoms (commonly bitemporal hemianopia), an MRI pituitary gland would be not indicated at this stage.

An oral glucose tolerance test has now become the confirmatory investigation and is used after serum IGF-1 levels return as being raised. Glucose normally inhibits the release of growth hormone. Therefore, if a positive growth hormone level is achieved after a glucose challenge, acromegaly can be confirmed.

Question:

A 3-month-old baby girl is diagnosed as having developmental dysplasia of the left hip following an ultrasound examination. Clinical examination of the hip was abnormal at birth. What treatment is she most likely to be given?

A.Double nappies

B.Pavlik harness (dynamic flexion-abduction orthosis)

C.Spica cast in flexion and abduction

D.Re-scan at 6 months

E.Surgery

Answer:Pavlik harness (dynamic flexion-abduction orthosis)

Explanation:

Question:

A 19-year-old man presents to the emergency department with three days of progressively worsening nausea, headache and dizziness. He has no fever, photophobia or neck stiffness and no associated hearing loss or tinnitus. There is no history of recent viral illness. Four days ago, he moved into a new student house, which he describes as cramped and poorly maintained. His housemate has also developed similar symptoms and he mentions that these improve slightly when they go for a walk outside or spend time in the garden.

Considering the likely diagnosis, what is the most important initial management step?

A.Apply a pulse oximeter and use supplemental oxygen as required to maintain oxygen saturations >94%

B.Give 100% oxygen via a non-rebreathe mask

C.Prescribe simple analgesia and antiemetic medication, advise regular hydration and monitor symptoms over the next hour

D.Request an emergency CT head

E.Run a venous blood gas to identify the most appropriate treatment approach

Answer:Give 100% oxygen via a non-rebreathe mask

Explanation:

Carbon monoxide binds readily to Hb, forming carboxyhaemoglobin → reduced oxygen carrying capacity

Important for meLess important

The likely diagnosis here is carbon monoxide poisoning given the presenting symptoms, their association with a poorly-maintained house, and their similar pattern of onset in a co-resident.

Applying a pulse oximeter and using supplemental oxygen to maintain oxygen saturations >94% is incorrect. Carbon monoxide binds with high affinity to haemoglobin, forming carboxyhaemoglobin. Pulse oximetry may be falsely high in patients suffering from carbon monoxide toxicity due to similarities between carboxyhaemoglobin and oxyhaemoglobin, making it a redundant technique for guiding oxygen requirement. When treating suspected carbon monoxide poisoning, high-flow oxygen should always be started straight away and oxygen saturations of 100% should be targeted.

Giving 100% oxygen via a non-rebreathe mask is correct. If carbon monoxide poisoning is suspected, patients should be treated immediately with high-flow oxygen for a minimum of six hours, since this is the most effective way of decreasing the half-life of carboxyhemoglobin in the blood and preventing serious complications.

Prescribing simple analgesia and antiemetic medication, advising regular hydration and monitoring symptoms over the next hour is incorrect. Whilst symptomatic management is an important component of patient care, the most pressing action in this scenario is commencing high-flow oxygen as soon as possible. Monitoring symptoms will become important later as oxygen is generally continued until all symptoms have resolved, rather than according to carbon monoxide levels.

Requesting an emergency CT head is incorrect. There is no obvious indication for a CT head in this patient, with no history of head injury and no mention of focal neurological signs. Given the suspected diagnosis, imaging is not an appropriate first step in management as it would delay essential treatment with high-flow oxygen.

Running a venous blood gas to identify the most appropriate treatment approach is incorrect. Whilst venous and/or arterial blood gas sampling are certainly indicated, and both are more informative tests than pulse oximetry for indicating the reduced oxygen-carrying capacity of the blood following carbon monoxide poisoning, the initial priority here is not delaying the administration of high-flow oxygen to the patient.

Question:

A 48 year old male patient with a history of type 2 diabetes mellitus, angina and atrial fibrillation presents to clinic for a routine review. His main concern is new-onset erectile dysfunction and he asks you about whether or not he can use sildenafil. Which of his medications represents an absolute contra-indication to its use?

A.Warfarin

B.Ramipril

C.Nicorandil

D.Sitagliptin

E.Aspirin

Answer:Nicorandil

Explanation:

PDE 5 inhibitors (e.g. sildenafil) - contraindicated by nitrates and nicorandil

Important for meLess important

Nicorandil is an anti-anginal drug which has dual properties of a nitrate and a potassium channel agonist. Since nitrate use is an absolute contraindication for prescribing sildenafil, nicorandil is the correct answer here.

Question:

A 20-year-old African lady undergoes an open appendicectomy. She is reviewed for an unrelated problem 8 months later. On abdominal inspection the wound site is covered by shiny dark protuberant scar tissue that projects beyond the limits of the skin incision. Which of the following is the most likely underlying process?

A.Hypertrophic scar

B.Keloid scar

C.Marjolins ulcer

D.Repeated episodes of wound sepsis

E.Mycosis fungoides

Answer:Keloid scar

Explanation:

Keloid scars extend beyond the limits of the incision. Mycosis fungoides is a cutaneous T cell lymphoma.

Question:

A 30-year-old woman presents with a 2 day history of a painless red eye. She is otherwise well and has not noticed a decrease in her vision. The patient has no past medical history of note and is not on any long-term medications. On examination, her eyes are red and injected bilaterally. Upon applying light pressure on her eye with a cotton bud, you notice that the injected vessels seem to move.

What is the most likely diagnosis?

A.Iritis

B.Episcleritis

C.Posterior uveitis

D.Scleritis

E.Anterior uveitis

Answer:Episcleritis

Explanation:

In episcleritis, the injected vessels are mobile when gentle pressure is applied on the sclera. In scleritis, vessels are deeper, hence do not move

Important for meLess important

Episcleritis is the correct answer as there is no decrease in visual acuity and the injected vessels are mobile upon application of gentle pressure, indicating much more superficially involved vessels. Episcleritis is classically painless but can vary in the degree of pain from absent to severe and hence is not a good discriminant.

Iritis is another name for anterior uveitis and is usually painful with photophobia and loss of vision.

Posterior uveitis would usually cause floaters along with a loss of vision.

Scleritis would not have mobile vessels due to the injected vessels being located deeper anatomically.

Anterior uveitis is the same as iritis.

Question:

A 54-year-old lady attends a nurse-led diabetic review at her local community centre. She has insulin-dependent diabetes mellitus (IDDM) and peripheral arterial disease (PAD). She is compliant with her insulin and requires 14 units of subcutaneous insulin per day. She is complaining of a recurrent wound on her right foot that takes a long time to heal. The nurse asks for the opinion of the foundation year doctor.

What is the next most appropriate step to prevent the development of gangrene?

A.Increase the number of insulin units to 16

B.Prescribe an emollient and arrange appointment at diabetic foot clinic

C.Provide education about foot care and arrange appointment at diabetic foot clinic

D.Refer to vascular surgeon

E.Increase the number of insulin units to 16 and refer to vascular surgeon

Answer:Provide education about foot care and arrange appointment at diabetic foot clinic

Explanation:

Education about foot care is fundamental in the prevention of gangrene developing in diabetics

Important for meLess important

As the patient has an active ulcer, education about foot care and a diabetic foot clinic appointment must be organised. A diabetic foot clinic appointment would help in the assessment and treatment of the wound, while foot care education is aimed at preventing and acting on recurrence.

Increasing her insulin prescription, whilst this can be conducted by nurses, is not the best way to prevent the development of gangrene.

A referral to a vascular surgeon in itself is unlikely to be successful or well received without further assessment of the patient's wound, diabetic control and cardiovascular condition. It would also not lead to the prevention of gangrene.

Question:

You are half-way through your night shift when you receive a bleep requesting you urgently review a man in his seventies with new-onset bilateral leg weakness. Upon arriving, you are told the patient was admitted this morning directly from the oncology clinic, which he regularly attends due to a diagnosis of advanced prostate cancer, for treatment of suspected urosepsis.

On examination, the patient is complaining of terrible lower back pain along with reduced power and sensation in both legs, both of which are new symptoms. He has a catheter in which is full. He has not been incontinent of faeces.

Given the history and likely presentation, what would be your immediate management?

A.Request spinal imaging to confirm before initiating treatment

B.Immediately prescribe high dose oral dexamethasone

C.Prescribe NSAIDs and handover to the day team

D.Immediately prescribe high dose oral prednisolone

E.Administer 15L of 100% oxygen via a non-rebreather

Answer:Immediately prescribe high dose oral dexamethasone

Explanation:

If neoplastic spinal cord compression is suspected, high-dose oral dexamethasone should be given whilst awaiting investigations

Important for meLess important

This scenario demonstrates the importance of a patient's past medical history when conducting a review of an acute presentation. The sudden onset of these particular symptoms, in the context of advanced malignancy, point towards spinal cord compression likely due to metastasis. This is an oncological emergency and immediate management with high-dose oral dexamethasone must occur right away, before the result of any definitive investigations. Radiological confirmation is essential in most cases to confirm the diagnosis but must not delay the administration of dexamethasone.

Oral prednisolone is not the treatment of choice in this scenario and although administering high flow oxygen is sensible in many acutely unwell patients, it would not form part of this patient's immediate management (unless of course they were concurrently hypoxic). Additionally, due to the origin of this highly specific back pain presentation, prescribing NSAIDs alone without further investigation or management would not only be inappropriate but also dangerous.

Question:

An 18-month-old boy is brought to the GP by his mother as she is concerned about his breathing. Three days ago he started with fever, cough and rhinorrhoea. For the past 24 hours his mother reports that he has been 'wheezy'. On examination his temperature is 37.9ºC, heart rate 126/min, respiratory rate 42/min and a bilateral expiratory wheeze is noted. You prescribe a salbutamol inhaler along with a spacer. Two days later the mother represents noting the inhaler has made little difference to the wheeze. Clinical findings are similar, although his temperature today is 37.4ºC. What is the most appropriate next step in management?

A.Inhaled long-acting beta agonist

B.Oral prednisolone

C.Add in regular ipratropium bromide

D.Oral montelukast or inhaled corticosteroid

E.Oral amoxicillin

Answer:Oral montelukast or inhaled corticosteroid

Explanation:

This child is likely to have a viral-induced wheeze, also known as episodic viral wheeze. First-line treatment is short-acting bronchodilator therapy. If this is not successful then either oral montelukast or inhaled corticosteroids should be tried.

Question:

A 55-year-old woman presents with a 3-day history of continuous double-vision and vertigo. Her symptoms began with a severe episode of the room spinning followed by associated nausea and vomiting. Recently, she has also noticed left, high-pitched ringing. Her only past medical history includes an upper respiratory tract infection 1 week ago and migraines. She denies any headaches, numbness, or weakness.

Weber's test lateralises to the right ear, and Rinne's test is positive (air conduction louder than bone conduction) in both ears. Horizontal nystagmus is seen in both eyes.

What is the most likely diagnosis?

A.Labyrinthitis

B.Meniere's disease

C.Vestibular migraine

D.Vestibular neuronitis

E.Vestibular schwannoma

Answer:Labyrinthitis

Explanation:

Acute viral labrynthitis: sudden onset horizontal nystagmus, hearing disturbances, nausea, vomiting and vertigo

Important for meLess important

This patient has acute vertigo, horizontal nystagmus, tinnitus, nausea, and vomiting. Weber's and Rinne's tests demonstrate left-sided sensorineural hearing loss as Weber's test lateralises to the unaffected ear (the right ear), and Rinne's test is positive (normal, air conduction > bone conduction) bilaterally.

Labyrinthitis is correct. Since this patient has features due to both vestibular nerve involvement (vertigo and nystagmus) and labyrinth involvement (hearing disturbances), the likely diagnosis is labyrinthitis. Her recent viral infection is a risk factor for its development as viral labyrinthitis is the most common cause.

Meniere's disease is incorrect. Although this can have hearing disturbances along with vertigo, patients have episodes of symptoms that remit and recur, lasting from minutes to hours. Patients also report having hearing loss and aural fullness or roaring prior to or during episodes. This patient's features have been ongoing, making this diagnosis less likely.

Vestibular migraine is incorrect as this does not have hearing disturbances and would also have an associated headache, photophobia, phonophobia, and/or aura. This patient denies having headaches and none of these associated features is present.

Vestibular neuronitis is incorrect. Since this only involves the vestibular nerve, vestibular problems are the only features present (vertigo and nystagmus), without any involvement of the labyrinth (which causes hearing disturbances). Since this patient also has hearing disturbances, both the vestibular nerve and labyrinth are involved, making this diagnosis unlikely.

Vestibular schwannoma is incorrect. Although this can present with vertigo and tinnitus, patients classically have associated features such as an absent corneal reflex or facial nerve palsy. These additional features are not present, and vestibular schwannomas are rarer, making this option less likely.

Question:

A 75-year-old woman visits her GP, accompanied by her daughter. When her daughter visited her 1 week ago, she noticed that she had a nodular lesion, which has developed into a centrally depressed lesion as shown in the image below.

© Image used on license from DermNet NZ

The patient is systemically well and has not experienced unintended weight loss, night sweats or loss of appetite. She is a retired gardener, living by herself at home.

Upon examination, there is no pain or discharge.

What is the most likely diagnosis?

A.Basal cell carcinoma

B.Lupus pernio

C.Nodular melanoma

D.Rosacea

E.Squamous cell carcinoma

Answer:Basal cell carcinoma

Explanation:

Basal cell carcinoma is the correct answer. The image shows a nodular type basal cell carcinoma (BCC) that has progressed from being a nodule to a centrally depressed lesion. It is important to note that the edges are rolled, which is characteristic of BCC. Usually occurring in sun-exposed areas, like the nose, in this case, it forms a nodule with an umbilicated centre and telangiectasia, which will then form an ulcer or 'crater' as seen in the image. Regarding terminology, a papule is a small raised area of the skin under 5mm, whereas a nodule is above 5mm. Mohs surgery is used to remove all cancerous cells, but due to old age radiotherapy may also be considered for this patient.

Lupus pernio is incorrect. Despite its name, this is the cutaneous manifestation of sarcoidosis. It usually appears as multiple painless red/purple nodules (raised skin >5mm). They do tend to ulcerate but they would not appear as in the image here. The patient also does not have any symptoms suggestive of sarcoidosis. These would include respiratory involvement like cough, systemic symptoms like weight loss, fever and malaise or other skin changes like erythema nodosum.

Nodular melanoma is incorrect. Melanoma tends to be pigmented and is usually located in the limbs and trunk, rather than the face and neck. The nodular type would look like a nodule (big papule) but would not likely erode as it did in this case.

Rosacea is incorrect. This is a good differential, as this common skin condition tends to appear on the nose, cheeks and forehead, however, it tends to be erythematous with telangiectasia. It is common to see phymatous skin changes (hyperplasia of the skin) that commonly happen on the nose. None of these changes can be seen in the image.

Squamous cell carcinoma is incorrect. It is commonly keratotic (wart-like appearance) with sun-exposure and actinic keratosis being some of the risk factors. It is commonly painful, which is not the case here. Sometimes it can appear as an ulcer but it will not have rolled edges like BCC.

Question:

An asymptomatic 61-year-old woman is noted to have an irregular pulse. A routine 12-lead ECG subsequently confirms atrial fibrillation. Her blood pressure is 135/82mmHg and her heart rate is 104bpm. She takes no regular medications. Routine blood and urine results are normal. She is commenced on bisoprolol.

What is the best additional management option?

A.Do not offer anticoagulation

B.Offer a direct-acting oral anticoagulant

C.Offer a low molecular weight heparin

D.Offer a vitamin K antagonist

E.Refer to cardiology for cardioversion

Answer:Do not offer anticoagulation

Explanation:

Anticoagulation should be considered for the following:

Men: CHA2DS2-VASC >= 1

Women CHA2DS2-VASC >= 2

Important for meLess important

Do not offer anticoagulation is correct. As per NICE guidelines, the CHA2DS2-VASc score tool is used to assess stroke risk in atrial fibrillation and guide the decision to offer antithrombotic treatment. Here, her CHA2DS2-VASC score is 1. Anticoagulation should be considered in women with a score of 2 or greater (1 or greater in men). Despite anticoagulation not currently being indicated, this will need to be re-addressed when she turns 65, or if she reaches any other criteria i.e. develops congestive heart failure/ left ventricular dysfunction, hypertension, diabetes mellitus, stroke/TIA or vascular disease (myocardial infarction, peripheral arterial disease, or aortic plaque).

Offer a direct-acting oral anticoagulant is incorrect as anticoagulation is not indicated. They are the first-line choice of anticoagulation for stroke prevention in atrial fibrillation, unless contraindicated or not tolerated / suitable.

Offer a low molecular weight heparin is incorrect. They are not a suitable choice of anticoagulation agent for stroke prevention in atrial fibrillation, and anticoagulation is not currently required.

Offer a vitamin K antagonist (e.g. warfarin) is incorrect as anticoagulation is not currently indicated. Warfarin is a suitable second-line option if anticoagulation is required but a direct oral anticoagulant is not suitable or tolerated.

Refer to cardiology for cardioversion is incorrect as she does not reach the threshold for referral. Reasons for referral include atrial fibrillation which has a reversible cause, patients who have heart failure primarily caused or worsened by atrial fibrillation, haemodynamically unstable atrial fibrillation, persistent atrial fibrillation, or atrial fibrillation of recent known onset <48hrs.

Question:

A 33-year-old female attends your gynaecology clinic. This is a follow up appointment following diagnosis of a symptomatic 6mm intramural fibroid. This problem has been troubling her for a number of months and as such she is being considered for surgery. As she has not yet completed her family, it has been decided that the most appropriate surgical approach would be an open myomectomy. Which of the following is a common complication following this operation?

A.Cyst formation

B.Bladder injury

C.Uterine perforation

D.Surgical menopause

E.Adhesions

Answer:Adhesions

Explanation:

Adhesions are the most common complication of this operation. Bladder injury and uterine perforation are complications but they are less common. Cyst formation and surgical menopause are not complications.

Please see the following NICE guidelines for further information:

http:cks.nice.org.uk/fibroids#!scenariorecommendation:3

Question:

A 74-year-old retired artist attends the GP with a long-standing painless loss of vision. She complains of a gradual loss of vision affecting reading as she is finding the words on the page more difficult to see. She also complains that straight lines in her paintings are starting to appear wonky and this is also picked up with Amsler grid testing.

What is the most likely diagnosis?

A.Cataracts

B.Dry age-related macular degeneration

C.Glaucoma

D.Retinal detachment

E.Wet age-related macular degeneration

Answer:Dry age-related macular degeneration

Explanation:

Amsler grid testing (to check for distortion of line perception) may be useful in testing patients with suspected age related macular degeneration

Important for meLess important

Cataracts is incorrect as although it does cause a painless gradual loss of vision, it is associated more with loss of colour vision. Amsler grid testing is more specific for macular degeneration so the correct diagnosis in this clinical scenario is macular degeneration.

Dry age-related macular degeneration (ARMD) is correct as the symptoms described are consistent with a macular degeneration diagnosis. 90% of cases of macular degeneration are the dry subtype so the correct answer is dry age-related macular degeneration. Dry ARMD also usually presents with a more gradual loss of vision than wet ARMD which fits this patient.

Glaucoma is incorrect. Although symptoms of glaucoma are consistent with a gradual loss of vision it is usually peripheral and associated with reduced visual acuity. This patient has experienced a gradual central loss of vision (as described by difficulty reading), so a diagnosis of macular degeneration is more likely.

Retinal detachment is incorrect. Retinal detachment usually presents with a sudden loss of vision that may be described as a curtain coming over the visual fields and can be associated with flashes and floaters. As this patient has not experienced these symptoms, this diagnosis is unlikely.

Wet age-related macular degeneration is incorrect. Macular degeneration is correct as the symptoms described are consistent with a macular degeneration diagnosis. 90% of cases of macular degeneration are the dry subtype so the correct answer is dry age-related macular degeneration. Wet ARMD also usually presents with a faster loss of vision than dry ARMD.

Question:

A 24-year-old man is involved in a road traffic accident. His right leg is trapped for 6 hours whilst he is moved. On examination his foot is insensate and a dorsalis pedis pulse is only weakly felt. Which of the biochemical abnormalities listed below is most likely to be present?

A.Alkalosis

B.Hypercalcaemia

C.Hypocalcaemia

D.Hyperkalaemia

E.Hyponatraemia

Answer:Hyperkalaemia

Explanation:

In this scenario the patient will have a compartment syndrome, delayed diagnosis and muscle death. The effect of muscle death will result in the release of potassium. It is also highly likely that there will be a degree of renal impairment, the result of which is that the serum potassium is likely to be high.

Question:

A 56-year-old woman attends the diabetes clinic for review. She has been very poorly compliant with her diabetes treatment since her diagnosis 8 years ago.

Her past medical history includes type-2 diabetes, left ventricular systolic dysfunction, vitamin B12 deficiency, sickle cell anaemia and migraines. She has also had a splenectomy.

Her HbA1c reading in the clinic is shown below:

HbA1c 39 mmol/mol (<42)

Which element of her past medical history is likely to have affected the HbA1c reading in this way?

A.Left ventricular systolic dysfunction

B.Migraines

C.Sickle cell anaemia

D.Splenectomy

E.Vitamin B12 deficiency

Answer:Sickle cell anaemia

Explanation:

Sickle cell anaemia and other haemoglobinopathies can give falsely low HbA1c readings due the decreased lifespan of RBCs

Important for meLess important

This patient has very poorly controlled diabetes so the HbA1c should be raised. It is falsely reduced as a result of the shorter red blood cell lifespan caused by sickle cell anaemia.

'Sickle cell anaemia' is correct, the shorter red blood cell lifespan causes a falsely lowered HbA1c reading. Normal red blood cell lifespan is around 120 days, but the lifespan of a sickle cell is reduced to 10-20 days.

'Left ventricular systolic dysfunction' is incorrect, this is not known to affect the HbA1c result as it has no effect on the red blood cell lifespan.

'Migraines' is incorrect, this is also not known to affect the HbA1c result as it has no effect on the red blood cell lifespan.

'Splenectomy' is incorrect as this would cause a falsely raised HbA1c as red blood cell lifespan would be prolonged. The spleen usually removes old red blood cells from the circulation, so no spleen will allow the red blood cells to live longer.

'Vitamin B12 deficiency' is incorrect as this would also cause a falsely raised HbA1c as red blood cell lifespan would be prolonged.

Question:

A 32-year-old woman presents with general fatigue and intermittent diarrhoea for some time. She has no significant past medical history and is generally fit and well.

Blood tests are performed:

Hb 102 g/L Male: (135-180)

Female: (115 - 160)

Ferritin 6 ng/mL (20 - 230)

Anti-tissue transglutaminase antibody 24U/mL (<4)

Which vaccine should this patient be given every 5 years?

A.Hepatitis B

B.Influenza

C.Meningococcal

D.Pneumococcal

E.Varicella-zoster

Answer:Pneumococcal

Explanation:

People with coeliac disease receive the pneumococcal vaccine due to hyposplenism

Important for meLess important

This patient likely has coeliac disease. As part of the condition, hyposplenism is common, which can lead to more severe infections with pneumococcus. As such, many groups such as Coeliac UK suggest the administration of the pneumococcal vaccine every 5 years.

The vaccine for hepatitis B often fails the first time in patients with coeliac disease. Non-responders to the vaccine should be tested for coeliac disease, and re-vaccinated once on a gluten-free diet. It is not given every 5 years, however - this refers to the pneumococcal vaccine.

The influenza vaccine should be offered yearly to patients with coeliac disease, not every 5 years. There is little evidence, however, to suggest that patients with coeliac disease have more serious illness than the general population.

The meningococcal vaccines are also generally recommended for patients with coeliac disease. However, this is not 5-yearly, unlike the pneumococcal vaccine.

In the UK, the varicella-zoster vaccine is not routinely administered. Similarly, it is not specifically recommended for patients with coeliac disease.

Question:

A 22-year-old woman with asthma presents to the outpatient clinic with difficulty breathing and a productive cough for one month. Her symptoms were previously controlled with inhaled salbutamol and corticosteroids. Chest X-ray reveals infiltrates in the right middle lobe, and blood tests reveal eosinophilia. Allergic bronchopulmonary aspergillosis is diagnosed with elevated serum-specific IgE and positive skin testing for Aspergillus.

Which of the following is the treatment of choice for this patient?

A.Oral azithromycin

B.Oral cetirizine

C.Oral itraconazole

D.Oral levofloxacin

E.Oral prednisolone

Answer:Oral prednisolone

Explanation:

Oral glucocorticoids are the treatment of choice for allergic bronchopulmonary aspergillosis

Important for meLess important

The mainstay of treatment for allergic bronchopulmonary aspergillosis (ABPA) is oral corticosteroids (oral prednisolone) to suppress the inflammatory response to Aspergillus fumigatus.

Oral azithromycin and oral levofloxacin are antibiotics commonly used to treat lung infections. But, ABPA is due to excessive inflammatory response and would not respond to antibiotics.

Antihistamines (oral cetirizine) is commonly used for treating allergic rhinitis, which is sometimes associated with asthma. But it does not treat ABPA.

Antifungal therapy (oral itraconazole) is considered as adjunctive therapy, but not primary therapy.

Question:

A 54-year-old woman presents to ophthalmology with a painful, red left eye and photophobia. On examination, you note a dendritic corneal ulcer. She has recently completed a course of oral prednisolone for an asthma exacerbation.

Given the most likely diagnosis, what is the appropriate treatment for this patient?

A.Topical aciclovir

B.Intravenous (IV) aciclovir

C.Topical ciprofloxacin

D.Topical chloramphenicol

E.Topical cyclopentolate

Answer:Topical aciclovir

Explanation:

Treatment for herpes simplex keratitis is topical aciclovir

Important for meLess important

The correct answer is topical aciclovir.

This patient is likely to be presenting with herpes simplex keratitis. A dendritic corneal ulcer is a common presenting symptom for this, and her recent course of oral prednisolone may have been a trigger. As such the most appropriate treatment would be topical antivirals, such as aciclovir.

While aciclovir would be the appropriate medication to give for herpes simplex keratitis it should be given topically rather than IV.

Topical ciprofloxacin would be given if the patient was suffering from bacterial or amoebic keratitis. However, these would be much more likely to occur in patients wearing contact lenses.

Topical chloramphenicol would be the appropriate treatment for a superficial eye infection such as conjunctivitis. However, it would be inappropriate in this patient, as they likely have a viral cause for their symptoms.

Topical cyclopentolate can be given in keratitis as pain relief, however, it would not treat the actual infection, so would not be the most appropriate treatment to give this patient.

Question:

A 47-year-old female is reviewed in the neurology clinic. She was diagnosed with epilepsy whilst a teenager and her seizures are well controlled. She is however concerned about increasing numbness of her fingers and soles of her feet. Which one of the following medications is most likely to be responsible?

A.Phenytoin

B.Lamotrigine

C.Sodium valproate

D.Ethosuximide

E.Levetiracetam

Answer:Phenytoin

Explanation:

Peripheral neuropathy is a known adverse effect of phenytoin

Question:

A 63-year-old woman has ongoing lower back pain. She has been suffering for six weeks and requiring increasing doses of co-codamol. She has also noticed shooting pain down the right leg. She denies any trauma. She finds that the pain sometimes wakes her up at night. She denies any incontinence, weight loss, or night sweats. She is known to have breast cancer for which she has undergone a wide local excision four months ago but declined post-operative radiotherapy. She also has been diagnosed with depression and HIV. She thinks her HIV is well controlled as she remembers being told her last CD4 count was 700 and her viral load undetectable. On examination, there is a slight weakness in her right leg. An urgent MRI of her spine is requested. What should be done in the meantime?

A.Start amphotericin

B.Start oral dexamethasone and omeprazole

C.Start IV flucloxacillin

D.Start anti- tuberculosis treatment

E.Start IV aciclovir

Answer:Start oral dexamethasone and omeprazole

Explanation:

If neoplastic spinal cord compression is suspected, high-dose oral dexamethasone should be given whilst awaiting investigations

Important for meLess important

The correct answer is to start oral dexamethasone and omeprazole. This is a patient who has developed worsening nocturnal back pain, shooting leg pain and leg weakness. With a background of breast cancer, especially not having postoperative radiotherapy which significantly reduces recurrence, she is at high risk of metastatic spinal cord compression. She should be given dexamethasone with PPI cover urgently. A CD4 count of 700 makes HIV neurocomplications unlikely, and would not explain her back pain. This makes amphotericin and aciclovir inappropriate. Spinal TB is a possibility, but metastatic cord compression is a far more likely diagnosis.

Question:

A 32-year-old woman presents with a 12 hour history of abdominal pain, vomiting and jaundice. On examination she has tender hepatomegaly, ascites and a BMI of 35 kg/m². She has a past medical history of antiphospholipid syndrome. She drinks approximately 18 units of alcohol per week.

What is the most likely diagnosis?

A.Acute cholecystitis

B.Ascending cholangitis

C.Budd-Chiari syndrome

D.Non alcoholic fatty liver disease

E.Auto-immune hepatitis

Answer:Budd-Chiari syndrome

Explanation:

Budd-Chiari syndrome presents with the triad of sudden onset abdominal pain, ascites, and tender hepatomegaly

Important for meLess important

Budd-Chiari syndrome is a condition characterized by obstruction to hepatic venous outflow. It usually occurs in a patient with a hypercoagulative state (e.g. antiphospholipid syndrome) but can also occur as a result of physical obstruction (e.g. tumour). The venous congestion can cause hepatomegaly and portal hypertension which can can also result in splenomegaly and ascites.

Question:

A 48-year-old man presents to your GP practice. He complains of needing to pass urine quite urgently much more frequently than normal. This has kept him up all night. He often has to rush to the toilet. During urination he describes a burning sensation. Further questioning reveals that these symptoms have developed over the last 5 days.

The patient has a past medical history of type 2 diabetes mellitus for which he takes metformin, gliclazide and ertugliflozin. He works as a bus driver which has been made incredibly difficult as he now requires frequent toilet breaks.

On examination, you assess his observations, which are all normal, and then move onto examine his penis and perform a rectal examination. His penis appears normal and is uncircumcised. You identify a smooth, walnut sized mass with a midline groove on rectal examination. Urinalysis is positive for leukocytes, nitrites and red blood cells.

What is the most important risk factor for the diagnosis in this case?

A.Ertugliflozin use

B.Male sex

C.Old age

D.Uncircumcised penis

E.Benign prostatic hyperplasia

Answer:Ertugliflozin use

Explanation:

Sodium-glucose co-transporter 2 inhibitors are associated with an increased risk of urinary tract infections

Important for meLess important

Ertugliflozin use is the correct answer. It is a sodium-glucose co-transporter 2 inhibitor (SGLT2 inhibitor) which reduces blood glucose concentrations by increasing urinary excretion of glucose. While an effective treatment for type 2 diabetes, SGLT2 inhibitors increase the risk of urinary tract infections (UTIs) as there is more glucose in the bladder and urine than normal.

We can tell this patient has a UTI as he is displaying classic symptoms of UTI: frequency, urgency and dysuria. Urinalysis confirms the diagnosis as leukocytes and nitrites are suggestive of infection.

Male sex is not a risk factor for UTI. Men are at lower risk of UTI as their urethra is longer which makes it harder for bacteria to track into the bladder.

While old age is a risk factor for UTI, this patient does not count as he is not over 50 years of age. The majority of male UTI sufferers are over 50 years. Young men with UTIs are much more likely to have a structural defect.

Having an uncircumcised penis may increase the risk of UTI in men, however the evidence is weak. The association is more established in male children.

Finally, benign prostatic hyperplasia (BPH) is an incorrect answer too. This condition is a risk factor for UTI, however there is no evidence this patient has BPH as his prostate is normal on examination. The patient is also below the typical age of onset for BPH making this diagnosis less likely.

Question:

A 32-year-old male presents to the emergency department after being involved in a car crash in which he sustained traumatic injuries to his thorax. Shortly after arrival, his pulses can no longer be detected and an ECG shows asystole. Cardiopulmonary resuscitation (CPR) is started at a ratio of chest compressions to rescue breaths of 30:2.

What is the next best step in the management of this patient?

A.0.5ml 1 in 1,000 adrenaline delivered via intramuscular (IM) injection

B.0.5ml 1 in 1,000 adrenaline delivered via intravenous (IV) injection

C.10ml 1 in 10,000 adrenaline delivered via intravenous (IV) injection

D.Synchronised electrical cardioversion

E.Unsynchronised electrical cardioversion (defibrillation)

Answer:10ml 1 in 10,000 adrenaline delivered via intravenous (IV) injection

Explanation:

Recommend Adult Life Support (ALS) adrenaline doses

anaphylaxis: 0.5mg - 0.5ml 1:1,000 IM

cardiac arrest: 1mg - 10ml 1:10,000 IV or 1ml of 1:1000 IV

Important for meLess important

This patient has suffered a cardiac arrest secondary to traumatic injuries to his thorax. The exact cause of the cardiac arrest cannot be determined from the clinical information given, but possible causes may include hypovolaemia, tension pneumothorax and cardiac tamponade. As this patient has asystole, which is a non-shockable rhythm, the next best step in his management is to administer IV adrenaline. The dose of adrenaline in cardiac arrest is 1mg, which is equivalent to 10ml 1 in 1,0000 adrenaline.

0.5ml 1 in 1,000 adrenaline delivered via intramuscular (IM) injection is incorrect as this is the management of anaphylactic shock in adults and children aged 13 years and over.

0.5ml 1 in 1,000 adrenaline delivered via intravenous (IV) injection is incorrect as this is the incorrect dose of adrenaline in cardiac arrest.

Synchronised electrical cardioversion is incorrect, this is a low energy shock that is given at a set point during the heartbeat. It can therefore only be given in rhythms with a clear QRS-t complex which are suitable for electrical cardioversion.

Unsynchronised electrical cardioversion (defibrillation) is incorrect, this is a high energy shock that is not synchronised to the heartbeat. It is suitable in cases of rhythms amenable to electrical cardioversion where the patient is pulseless, or unstable and the defibrillator will not synchronise, examples include pulseless ventricular tachycardia and ventricular fibrillation.

Question:

A 9-year-old boy who has recently arrived from India presents with fever. On examination a grey coating is seen surrounding the tonsils and there is extensive cervical lymphadenopathy. What is the most likely diagnosis?

A.Dengue fever

B.Typhoid

C.Paratyphoid

D.Actinomycosis

E.Diphtheria

Answer:Diphtheria

Explanation:

Question:

An 82-year-old woman presents to the GP with worsening fatigue and light-headedness over the last few months.

She appears pale. Her heart rate is 102 bpm, her blood pressure is 132/75 mmHg, and her oxygen saturations are 98%. She has a past medical history of longstanding type 2 diabetes mellitus and stage 4 chronic kidney disease. Her last eGFR measurement was 28 ml/min.

Blood tests show:

Hb 102 g/L (115 - 160)

Platelets 223 \* 109/L (150 - 400)

WBC 7.6 \* 109/L (4.0 - 11.0)

Calcium 2.3 mmol/L (2.1-2.6)

Phosphate 0.8 mmol/L (0.8-1.4)

Urea 9.5 mmol/L (2.0 - 7.0)

Creatinine 175 µmol/L (55 - 120)

What is the most likely underlying direct cause of her symptoms?

A.Chronic kidney disease

B.Diabetic nephropathy

C.Multiple myeloma

D.Renal artery stenosis

E.Upper gastrointestinal bleed

Answer:Chronic kidney disease

Explanation:

Chronic Kidney Disease often leads to anaemia due to reduced levels of erythropoietin

Important for meLess important

Chronic kidney disease (CKD) is correct as the kidneys produce erythropoietin (EPO) which stimulates the bone marrow to produce red blood cells. In CKD, EPO levels are reduced due to renal dysfunction, which leads to reduced red blood cell production and anaemia, giving rise to fatigue, pallor, and light-headedness seen, along with the reduced haemoglobin on her full blood count.

Diabetic nephropathy is incorrect. Although the patient's CKD is likely to be due to the patient's longstanding history of type 2 diabetes mellitus, which can cause diabetic nephropathy, this does not directly cause anaemia. Diabetic nephropathy refers to the progressive loss of kidney function due to glomerular damage, which does not immediately and directly cause anaemia. Once CKD occurs, EPO production can reduce, which causes anaemia.

Multiple myeloma is incorrect. Although this can present with anaemia and renal dysfunction, these findings also can occur as a result of anaemia secondary to CKD and reduced EPO production. Patients with multiple myeloma often have CRAB features (hypercalcaemia, renal dysfunction, anaemia, and bone pain). The absence of hypercalcaemia and bone pain makes this diagnosis less likely.

Renal artery stenosis is incorrect. Although this can occur secondary to atherosclerosis and eventually cause CKD in susceptible patients, this pathological process does not directly contribute to anaemia.

Upper gastrointestinal bleed is incorrect. Although anaemia with elevated urea can suggest an upper gastrointestinal bleed, it is more likely that the elevated urea is due to her CKD given that her creatinine is also elevated. This patient also does not have any features associated with upper gastrointestinal bleeds such as upper abdominal pain (as seen in peptic ulcer disease) or rectal bleeding.

Question:

Which one of the following statements regarding bendroflumethiazide is correct?

A.Is contraindicated in breast feeding

B.May cause hypercalcaemia

C.Potassium supplementation should be given for the first two weeks of treatment

D.Starts to act 3 to 4 hours after oral administration

E.Has no diuretic action at a dose of 2.5 mg od

Answer:May cause hypercalcaemia

Explanation:

Thiazide diuretics can cause hypercalcaemia and hypocalciuria

Important for meLess important

Bendroflumethiaizde starts to act within 1 to 2 hours and has a duration of action of 12 to 24 hours. The BNF advises that the amount present in breast milk is too small to be harmful.

Question:

A 5-week-old boy is brought into the GP by his mother with diarrhoea and vomiting for the past 4 days. He also has a new rash that is irritating him and has developed a runny nose. There is no history of any weight loss, pyrexia, or other family members being unwell.

On further questioning, she reports that she has tried to wean him from breast to bottle this week as she is going away with work in 3 weeks time and is anxious about him not feeding well if there is a sudden change. The GP suspects that the infant may have cow's milk protein intolerance.

What is the next most appropriate feed to trial in this infant?

Amino acid based formula

7%

Extensively hydrolysed formula

70%

High-protein formula

1%

Lactose free formula

17%

Soy based formula

5%

If a formula-fed baby is suspected of having mild-moderate cow's milk protein intolerance then a extensive hydrolysed formula should be tried

Important for meLess important

This infant is suspected to have a mild-moderate cow's milk protein intolerance - he is having frequent regurgitations, diarrhoea, and has recently been swapped to a formula feed. If he had more severe features, such as failure to thrive, severe atopic dermatitis, or laryngo-oedema: this would be suggestive of severe cow's milk protein intolerance. With the GP's suspicion, he should be trialled on an extensively hydrolysed formula. This formula is tolerated by 90% of infants with cow's milk protein intolerance. In this formula, the proteins that trigger allergy are hydrolysed into peptides which make them less allergenic.

Amino acid-based formula is appropriate for infants with severe cow's milk protein intolerance. This formula is less palatable, however, it is appropriate for those with severe intolerance as it is composed of free amino acids only.

High protein formula has been used to manage pre-term infants. This is becoming an increasingly specialised use as there are increasing studies showing that high-protein feed (even in prematurity) is associated with increased long-term obesity risk.

Lactose-free formula would be appropriate if the child was considered to be lactose intolerant. The features pointing towards cow's milk protein intolerance are the rash and runny nose. Infants with lactose intolerance will usually have GI symptoms only.

Soy based formula is not typically recommended for infants due to its high phyto-oestrogen content which could potentially give hormonal side effects.

Question:

A 45-year-old woman presents with itchy, violaceous papules on the flexor aspects of her wrists. She is normally fit and well and has not had a similar rash previously. Given the likely diagnosis, what other feature is she most likely to have?

A.Onycholysis

B.Raised ESR

C.Mucous membrane involvement

D.Pain in small joints

E.Microscopic haematuria

Answer:Mucous membrane involvement

Explanation:

Lichen

planus: purple, pruritic, papular, polygonal rash on flexor surfaces. Wickham's striae over surface. Oral involvement common

sclerosus: itchy white spots typically seen on the vulva of elderly women

Important for meLess important

Mucous membrane involvement is common in lichen planus

Question:

A middle-aged man presents with central chest pain. This has been since present this morning and is described as 'severe' and 'burning'. Examination of the cardiovascular system is unremarkable with a heart rate of 84/min, blood pressure of 148/92 mmHg and oxygen saturations of 98% on room air. You obtain an ECG:

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What does the ECG show?

A.Wolff-Parkinson White syndrome

B.Right bundle branch block

C.First degree heart block

D.Inferior myocardial ischaemia

E.Normal ECG

Answer:Normal ECG

Explanation:

This is a normal ECG. T wave inversion in III is a normal variant.

Question:

A 43-year-old woman who has rheumatoid arthritis is reviewed in clinic. She has responded poorly to methotrexate and consideration is being given to starting sulfasalazine. An existing allergy to which one of the following drugs may be a contradiction to the prescription?

A.Penicillin

B.Trimethoprim

C.Aspirin

D.Sulpiride

E.Leflunomide

Answer:Aspirin

Explanation:

Patients who are allergic to aspirin may also react to sulfasalazine

Important for meLess important

Question:

A 73-year-old man presents to his GP for his annual COPD check-up.

He has been feeling more short of breath and is struggling to walk as far as he was previously able to. However, he does not have a cough. He also reports noticing a tingling sensation in his hands and feet over the last few weeks.

His medications include salbutamol, salmeterol, and tiotropium inhalers. He has no known drug allergies.

On examination, he has a plethoric complexion.

What would you expect to see on his blood results?

A.Decreased number of red blood cells

B.Decreased number of white blood cells

C.Increased number of red blood cells

D.Increased number of white blood cells

E.No changes expected

Answer:Increased number of red blood cells

Explanation:

Polycythaemia is a complication of COPD

Important for meLess important

Increased number of red blood cells is correct. This patient has an existing history of COPD and is now experiencing symptoms of polycythaemia, a known complication of COPD. Polycythaemia is likely the cause of this patient's worsening breathlessness, pins and needles, and plethoric complexion. Therefore, the correct answer to this question would be increased number of red blood cells, as polycythaemia leads to an increase in the number of red cells.

Decrease number of red blood cells is incorrect. A decreased number of red blood cells would be indicative of an anaemia. Although this could explain the breathlessness and the pins and needles, it would not explain the plethoric complexion.

Decreased number of white blood cells is incorrect. A decrease in the number of white blood cells could indicate a myelodysplastic disorder or an acute viral infection. As this patient is presenting with signs and symptoms much more in keeping with polycythaemia, this answer is incorrect as it is not the single best answer.

Increased number of white blood cells is incorrect. An increase in the number of white blood cells would indicate a possible infection. This patient is experiencing worsening breathlessness which could indicate an underlying infection. However, he is not exhibiting any other signs such as a fever or productive cough.

No changes expected is incorrect. As mentioned above, this patient has signs and symptoms of polycythaemia. Therefore, you would expected to see an increased red cell count on his blood results, making this answer incorrect.

Question:

A father brings his 7-year-old son into your paediatric clinic as his son has recently been diagnosed with Fragile X syndrome. During the consultation you notice that the boy is sitting quietly, not making eye contact with you when you talk to him. You also observe he has low-set ears, a long thin face and an enlarged mandible. The father is concerned about the possible consequences of a diagnosis of Fragile X syndrome.

What can you tell him is a potential complication of Fragile X syndrome?

A.Mitral valve prolapse

B.Bronchiectasis

C.Supravalvular aortic stenosis

D.Type II diabetes mellitus

E.Pigmented gallstones

Answer:Mitral valve prolapse

Explanation:

Fragile X - associated with mitral valve prolapse

Important for meLess important

Fragile X syndrome is an X-linked dominant trinucleotide repeat disorder. It is the most common X-linked cause of learning difficulties. It can lead to a range of complications including: mitral valve prolapse, pes planus, autism, memory problems and speech disorders.

Bronchiectasis, supravalvular aortic stenosis, type II diabetes mellitus and pigmented gallstones are not significantly associated with Fragile X syndrome.

Bronchiectasis is associated with Kartagener's syndrome.

Supravalvular aortic stenosis is associated with William's syndrome.

Diabetes mellitus can be, rarely, associated with Wolfram syndrome.

Pigmented gallstones can occur as a result of G6PD deficiency or hereditary spherocytosis.

Question:

A 56-year-old male presents to clinic complaining of difficulty driving. On examination you note acral overgrowth, prognathism and macroglossia. Recent baseline blood tests revealed the following:

Calcium 2.2 mmol/L (2.1-2.6)

Phosphate 1.1 mmol/L (0.8-1.4)

Magnesium 0.8 mmol/L (0.7-1.0)

Thyroid stimulating hormone (TSH) 2.3 mU/L (0.5-5.5)

Free thyroxine (T4) 9.9 pmol/L (9.0 - 18)

What visual field defect will the patient exhibit on perimetry?

A.Homonymous hemianopia

B.Homonymous quadrantanopia

C.Central scotoma

D.Bitemporal hemianopia

E.Enlarged blind spot

Answer:Bitemporal hemianopia

Explanation:

Acromegaly can cause bitemporal hemianopia (sign of pituitary tumour)

Important for meLess important

This patient has signs of acromegaly (prognathism and macroglossia) and his difficulty driving is due to bitemporal hemianopia. The blood tests are normal but IGF-1 levels have not been measured. Bitemporal hemianopia is seen in acromegaly due to a tumour of pituitary somatotroph cells pressing on the optic chiasm.

Homonymous hemianopia is commonly seen in stroke and other lesions of the optic tract or optic radiation, distal to the optic nerve and optic chiasm.

Homonymous quadrantanopia is seen in lesions of the temporal or parietal lobes. Lesions of Meyer's loop in the temporal lobe cause a superior quadrantanopia whereas lesions of the parietal pathway cause an inferior quadrantanopia.

A central scotoma is commonly seen in macular degeneration, optic neuritis and bilaterally in lesions of the macular cortex.

An enlarged blind spot may sometimes be evident in patients with papilloedema.

Question:

A patient develops an eczematous, weeping rash on his wrist following the purchase of a new watch. In the Gell and Coombs classification of hypersensitivity reactions this is an example of a:

A.Type I reaction

B.Type II reaction

C.Type III reaction

D.Type IV reaction

E.Type V reaction

Answer:Type IV reaction

Explanation:

Type IV hypersensitivity reaction - allergic contact dermatitis

Important for meLess important

This patient has allergic contact dermatitis, which is commonly precipitated by nickel

Question:

A 71-year-old woman presents to the emergency department as her smartwatch ECG recorder has indicated that she has had atrial fibrillation for the last three days. She has become slightly short of breath on exertion in the previous 24 hours. On assessment, her heart rate is irregular, with a heart rate of 98 bpm. Her blood pressure is maintained at 130/72 mmHg. She is not known to have atrial fibrillation and only takes amlodipine for grade I hypertension.

What is the most appropriate treatment approach?

A.Commence apixaban and perform immediate electrical cardioversion

B.Commence apixaban, perform a transoesophageal echocardiogram, and arrange urgent inpatient electrical cardioversion

C.Discharge on amiodarone and apixaban and arrange cardioversion in four weeks' time

D.Discharge on apixaban, bisoprolol, and digoxin, and arrange cardioversion in two weeks

E.Discharge on bisoprolol and apixaban and arrange cardioversion in four weeks

Answer:Discharge on bisoprolol and apixaban and arrange cardioversion in four weeks

Explanation:

Acute onset of atrial fibrillation: if ≥ 48 hours - rate control initially, then if considered for long‑term rhythm control, delay cardioversion until they have been maintained on therapeutic anticoagulation for a minimum of 3 weeks

Important for meLess important

Discharge on bisoprolol and apixaban and arrange cardioversion in four weeks is the correct answer. A rhythm control approach would be reasonable for a patient with no medical history. Since the onset of her atrial fibrillation is >48 hours, controlling her rate with bisoprolol whilst anticoagulating for at least three weeks is the appropriate action. After this period of treatment, electrical cardioversion would be safe.

Commence apixaban and perform immediate electrical cardioversion is incorrect. This woman is haemodynamically stable, meaning immediate cardioversion is not indicated. It risks systemic embolisation of thrombi that may have formed in the left atrial appendage. Instead, she requires several weeks of oral anticoagulation and beta-blockade to improve her symptoms.

Commence apixaban, perform a transoesophageal echocardiogram, and arrange urgent inpatient electrical cardioversion is incorrect. This woman is cardiovascularly stable, meaning there is no need for emergency treatment. If she were very unwell, a transoesophageal echocardiogram would be useful for assessing left atrial appendage thrombus before electrical cardioversion. The safer approach would be to alleviate her symptoms with beta-blockers, anticoagulate her for at least three weeks, and proceed to electrical cardioversion.

Discharge on amiodarone and apixaban and arrange cardioversion in four weeks is incorrect. Amiodarone would not be the agent of choice to alleviate her symptoms during the period whilst awaiting cardioversion. Amiodarone has many side effects and has a long half-life, meaning it takes many weeks to clear from the body. Certainly, amiodarone can be used for chemical cardioversion, but in this patient, this medication alongside electrical cardioversion is not recommended practice. Amiodarone is generally reserved for patients with refractory disease and those with structural heart disease.

Discharge on apixaban, bisoprolol, digoxin, and arrange cardioversion in two weeks is incorrect. There are several issues with this approach. There is no need to prescribe two agents at the onset of treatment. Second, two weeks of anticoagulation before cardioversion is insufficient, meaning the risk for systemic embolisation of thrombus is high. At least three weeks of oral anticoagulation is required before electrical cardioversion.

Question:

A 35-year-old man in the emergency department presented with shortness of breath and has now been reported to have had a seizure by the nurse looking after him. The nurse said he saw him close his eyes and then his body rhythmically jerk, starting in his arms and moving to his whole body. There was some urinary incontinence and post-ictal confusion.

He had a positive SARS-COV-2 swab 7 days ago and now has an oxygen requirement of 2 litres via nasal cannulae. He is a known epileptic and is usually well-controlled on sodium valproate.

His investigations following the seizure are as follows:

His blood glucose taken following the seizure was 4.8 mmol/L.

Hb 150 g/L Male: (135-180)

Female: (115 - 160)

Platelets 370 \* 109/L (150 - 400)

WBC 10.0 \* 109/L (4.0 - 11.0)

Na+ 132 mmol/L (135 - 145)

K+ 4.7 mmol/L (3.5 - 5.0)

Urea 7.7 mmol/L (2.0 - 7.0)

Creatinine 110 µmol/L (55 - 120)

CRP 10 mg/L (< 5)

His arterial blood gas results demonstrate a type 1 respiratory failure and a slightly raised lactate.

What blood test can differentiate true seizures from pseudoseizures?

A.Blood glucose

B.C-reactive protein

C.Lactate

D.Prolactin

E.Sodium

Answer:Prolactin

Explanation:

Prolactin can be used to differentiate between a true seizure and a pseudoseizure

Important for meLess important

Prolactin is the correct option, as prolactin is specifically raised following true epileptiform seizures, compared to pseudoseizures. In one study the detection of tonic-clonic seizures using prolactin had a sensitivity of 100% (Serum prolactin in seizure diagnosis. Glass half-full or half-empty? Neurol Clin Pract. 2016 Apr; 6(2): 100–101).

Blood glucose is incorrect. Even though an episode of hypoglycaemia can be associated with seizures, these are not usually originating as true seizures with the typical epileptiform activity in the brain.

C-reactive protein is incorrect as it is a marker of infection and even though infection can lead to seizures in epileptics, this is a very non-specific marker for infection and inflammation and not true seizures.

Lactate is incorrect as it does not differentiate between true seizures and pseudoseizures as accurately as a raised prolactin does. A raised lactate indicates that anaerobic respiration has taken place, which can occur with muscle activity with true seizures, but also occurs with a multitude of other conditions, including sepsis, cancer and even sustained pseudoseizures.

Sodium is incorrect as this can be implicated in producing seizures when there is a state of hyponatraemia. However, this blood test does not help differentiate between pseudoseizures and seizures.

Question:

A 45-year-old man complains of feeling tired all the time to his GP. He has no other symptoms and his examination is normal. Blood tests are arranged which show:

Hb 104 g/l

MCV 69.7 fL

Platelets 304 \* 109/l

WBC 8.7 \* 109/l

Iron low

Ferritin low

TIBC high

Based on the above findings, what would be the most appropriate next step?

A.Routine referral for upper and lower GI endoscopy

B.Routine referral for CT chest, abdomen and pelvis

C.Further bloods including TFTs, bone profile and haemoglobinopathy screen

D.Urgent referral for CT chest, abdomen and pelvis

E.Urgent referral for upper and lower GI endoscopy - under the 2ww pathway

Answer:Urgent referral for upper and lower GI endoscopy - under the 2ww pathway

Explanation:

Men of any age with a Hb below 110g/L should be referred for upper and lower GI endoscopy as a 2ww

Important for meLess important

In accordance with NICE guidelines, men of any age with a Hb below 110g/L should be referred for upper and lower GI endoscopy as a 2ww. These are separate guidelines to the cancer referral guidelines. It is important to note that the cancer referral guidelines are not mutually exclusive and if there are red flag symptoms in people of any age then a pragmatic approach is needed as to the urgency of investigation. A haemoglobin this low is not normal and should ring alarm bells, and needs to be investigated urgently. GI malignancy is the most pressing thing to exclude in this gentleman and as such an OGD and colonoscopy are the most appropriate next tests, given that he has no other symptoms.

See NICE CKS on this subject

https://cks.nice.org.uk/anaemia-iron-deficiency#!scenario

Question:

A 70-year-old man who takes warfarin for atrial fibrillation is found to have an INR of 6.2. Which of the following drugs is he most likely to have recently taken?

A.Ciprofloxacin

B.Flucloxacillin

C.St John's Wort

D.Carbamazepine

E.Aspirin

Answer:Ciprofloxacin

Explanation:

Ciprofloxacin is a P450 enzyme inhibitor

Important for meLess important

Ciprofloxacin is a known inhibitor of the P450 system and hence may cause an increase in INR.

Question:

What is the most appropriate time to take blood samples for therapeutic monitoring of digoxin levels?

A.At any time

B.At least 6 hours after last dose

C.At least 2 hours after last dose

D.Immediately after last dose

E.At least 4 hours after last dose

Answer:At least 6 hours after last dose

Explanation:

Question:

Which one of the following statements regarding adult advanced life support is correct?

A.Ratio of chest compressions to ventilation is 15:2

B.Drugs should be given via the tracheal tube if intravenous access is not possible

C.Chest compressions should continue whilst the defibrillator is charging

D.During a VF/VT cardiac arrest, amiodarone 300 mg is given just prior to the second shock

E.During a VF/VT cardiac arrest, adrenaline 1 mg is given after the first shock

Answer:Chest compressions should continue whilst the defibrillator is charging

Explanation:

Question:

A 20-year-old model comes to see you as she would like to start using contraception. She tells you 'staying slim is part of my job' she is reluctant to use anything which may cause weight gain.

Which one of the following methods of contraception is proven to be associated with weight gain?

A.Combined pill

B.Depo Provera (Medroxyprogesterone acetate)

C.Progesterone only pill

D.Sub-dermal implant

E.Mirena intrauterine system

Answer:Depo Provera (Medroxyprogesterone acetate)

Explanation:

The Depo Provera is the only method of contraception which has a proven link with weight gain. Other adverse effects include a delay of up to 1 year in the resumption of fertility, increased risk of osteoporosis and irregular bleeding.

The combined pill, progesterone only pill, subdermal implant and Mirena intrauterine system are not associated with a delayed resumption of fertility.

Question:

A 40-year-old man has presented to his GP feeling rather unwell. For the past 3 weeks, he has experienced flu-like symptoms, nausea and arthralgia. He is also visibly jaundiced. He returned from a holiday to Mallorca, a Spanish island, 6 weeks ago. He did not have any unprotected sex whilst there, however, he ate out most evenings at the local seafood restaurants. He has no past medical history.

On examination, the patient's liver and spleen feel enlarged.

Based on this information, which of the following conditions is most likely responsible for causing this patient's hepatosplenomegaly?

A.Viral hepatitis A

B.Infectious mononucleosis

C.Malaria

D.Cytomegalovirus

E.Portal hypertension

Answer:Viral hepatitis A

Explanation:

Portal hypertension is not a cause of hepatomegaly

Important for meLess important

This case presents a classical picture of a hepatitis A presentation. The condition has an incubation period of 2-4 weeks. A flu-like prodrome initiates the illness. This is often later followed by the patient feeling nauseous, and arthralgia is also a common feature. Hepatitis A can also progress to cause hepatosplenomegaly and jaundice. The clue in this question is that the patient has eaten out at a lot of seafood restaurants. Shellfish, in particular, are common sources of hepatitis A infections, as the virus is transmitted via the faecal-oral route. It is usually self-limiting and is not associated with chronicity. Importantly, Hepatitis A can be prevented through vaccinations.

A diagnosis of Hepatitis A can often be made purely through the history taking, therefore, it is important to consider the patient's social history such as recent travel, sexual history and what they may have eaten, mainly to differentiate between the different types of viral hepatitis.

Answers 2, 3 & 4 can also cause hepatosplenomegaly. The reasons why these are less likely to be the causative agent, in this case, are explained below:

2 - Infectious mononucleosis (glandular fever) - a triad of; a sore throat, pyrexia and lymphadenopathy. So, this does not fit with the patient in this case.

3 - Malaria - often non-specific symptoms such as; fever, headaches, malaise, myalgia and a cough. The travel history is essential to consider malaria as a potential diagnosis. Mallorca is not an area currently at risk from malaria. The patient also did not report any insect bites.

4 - Cytomegalovirus - a very similar presentation to infectious mononucleosis (see above). More commonly presents amongst those who are immunocompromised, so is far less likely here.

Answer 5, is a cause of splenomegaly, but importantly portal hypertension itself is not a cause of hepatomegaly. It is most commonly associated with liver cirrhosis, where there is increased vascular resistance to the intrahepatic portal flow. Some clinical signs of portal hypertension include; splenomegaly, ascites and caput medusa.

Question:

A 72-year-old man is referred to ophthalmology complaining of worsening vision. He says that he has noticed his vision gradually getting worse over the last few months, but feels that it has suddenly deteriorated further in the last week. Visual field testing reveals a central scotoma and there are well-demarcated red patches on the retina on fundoscopy.

Which of the following is the most likely diagnosis?

A.Acute angle-closure glaucoma

B.Dry age-related macular degeneration

C.Retinal detachment

D.Vitreous haemorrhage

E.Wet age-related macular degeneration

Answer:Wet age-related macular degeneration

Explanation:

Decreasing vision over months with metamorphopsia and central scotoma should cause high suspicion of wet age-related macular degeneration

Important for meLess important

The correct answer is wet age-related macular degeneration (ARMD).

This patient is presenting with features typical of wet ARMD. They have had steadily worsening loss of vision over the previous few months, followed by a sudden deterioration. The examination findings of a central scotoma and red patches on the retina on fundoscopy are also typical of wet ARMD.

Acute angle-closure glaucoma would typically present with a severe headache and visual disturbance, accompanied by vomiting. In contrast to this patient, the pupils of affected eyes in acute glaucoma are often mid-dilated and fixed, or an irregular pupil shape may be present.

Dry ARMD would also present with a slow decrease in vision over a few months, however, it is less likely to present with a sudden further deterioration like in this patient. Additionally, you would not see the red patches on the retina, which represent leakage of serous fluid and blood.

Retinal detachment is a cause of sudden, painless loss of vision. It would typically present as a dense shadow that starts peripherally and progresses centrally. It may progress from posterior vitreous detachment, and so patients may complain of flashes and floaters in their vision before retinal detachment occurs.

Vitreous haemorrhage is a common cause of sudden visual loss in diabetics. It typically presents with acute onset, painless loss of vision. Patients may complain of dark spots in their vision. Fundoscopy typically shows a haemorrhage within the vitreous cavity.

Question:

A 17-year-old male presents to the emergency department after experiencing a 'funny turn' whilst at work. He was at his desk when his left arm began to 'jerk' slightly. These jerking movements of the arm worsened to the point that they could not be controlled. The whole episode lasted for a few minutes only.

Since this episode, the patient has noticed he cannot raise his left arm from his side and has 1/5 power in this limb. He has no significant past medical history but states that he has experienced a few similar 'funny turns' in the recent months.

Given the likely diagnosis, which part of the brain was most likely involved?

A.Brainstem

B.Frontal lobe

C.Occipital lobe

D.Parietal lobe

E.Temporal lobe

Answer:Frontal lobe

Explanation:

Patients with focal seizures may experience post-ictal weakness (Todd's paresis)

Important for meLess important

This patient is describing a focal aware seizure and accompanying Todd's paresis. Frontal lobe seizures typically cause motor symptoms such as jerking of the limb and are associated with Todd's paresis.

Brainstem seizures are very rare and not well researched, and are very unlikely to be the cause of this patient's symptoms.

An occipital lobe seizure would typically be associated with visual symptoms.

Parietal lobe seizures are most strongly associated with paraesthesia. A parietal lobe seizure would not explain the motor symptoms and resulting paresis that this patient described.

Temporal lobe seizures are more associated with automatisms and hallucinations and would also not explain the paresis.

Question:

A 55-year-old man on your practice list has been having ongoing angina episodes over the past month despite being prescribed bisoprolol at the maximum dose. You wish to consider an additional medication to manage his angina. He has a blood pressure of 142/76 mmHg and a heart rate of 86 beats/min which is regular. There is no other relevant past medical history.

What is the most appropriate additional treatment?

A.Amlodipine

B.Diltiazem

C.Nicorandil

D.Ranolazine

E.Verapamil

Answer:Amlodipine

Explanation:

If angina is not controlled with a beta-blocker, a longer-acting dihydropyridine calcium channel blocker should be added

Important for meLess important

For poorly controlled angina despite maximum beta-blocker therapy, a long-acting calcium-channel blocker such as amlodipine should be added.

Diltiazem and verapamil are rate-limiting calcium-channel blockers and must not be combined with beta-blockers as they can cause severe bradycardia and heart failure.

Nicorandil is a potassium-channel activator and would be a suitable option if a calcium-channel blocker was contraindicated or not tolerated as this patient's heart rate is over 70.

Ranolazine inhibits inward sodium current in heart muscle and would be a suitable option if a calcium-channel blocker was contraindicated or not tolerated. NICE advises seeking specialist advice when initiating ranolazine.

Question:

A third-year medical student is working in a hospital when they sustain a needle stick injury. Blood tests from the patient reveal that the patient has an active hepatitis B infection. Luckily, they were vaccinated against hepatitis B during their first year of medical school.

The student visits occupational health and they advise that their blood test after vaccination showed the following:

anti-HBs 9 (>10)

Given these results, what should be done next?

A.Antivirals for 4 weeks

B.Booster vaccine

C.Hepatitis B immune globulin (HBIG)

D.Hepatitis B immune globulin (HBIG) + a booster vaccine

E.No action needed

Answer:Hepatitis B immune globulin (HBIG) + a booster vaccine

Explanation:

Needlestick injury from Hep B positive source: non-responders (anti-HBs < 10) require hepatitis B immune globulin (HBIG) + a booster vaccine

Important for meLess important

HBIG + a booster vaccine is correct. The medical student in this case has been exposed to blood from a hepatitis B-positive patient. Although the student has had a full course of hepatitis B vaccinations, they have had blood tests that have shown they are a vaccine non-responder. We can tell this as the anti-HBs levels are below 10. Therefore, this patient requires HBIG and a booster vaccination to minimise the chance of hepatitis transmission.

Antivirals for 4 weeks is incorrect. Antivirals are not used in the post-exposure prophylaxis treatment of hepatitis B. This would be the answer if the student has been exposed to HIV. However, this is not the case and so this answer is incorrect.

Booster vaccine is incorrect. If the patient had been shown to respond to the hepatitis B vaccination course they had received in university (anti-HBs >10), then this would be the correct answer. However, as the student was a non-responder to the vaccine, they require a booster vaccination and HBIG.

HBIG is incorrect. The patient does require HBIG as they were a vaccination non-responder. However, they also require a booster dose of the vaccination, making this option incorrect.

No action needed is incorrect. This student has been exposed to a blood borne virus and is a non-responder to his previous vaccinations against hepatitis B. Therefore, he requires post-exposure prophylaxis in the form of a booster dose of the vaccine and HBIG.

Question:

A 57-year-old man present to his general practitioner with a three-day history of fever and a rash. He is normally fit and well, with his only long term medication being allopurinol for prophylaxis of gout. Eight days ago, he was given a course of amoxicillin for community-acquired pneumonia, which has now resolved.

On examination, there is an erythematous, maculopapular rash and a mild wheeze in auscultation of his chest. His observations show temperature 38.3ºC, heart rate 87 bpm, respiratory rate 14 /min, blood pressure 164/92 mmHg and SpO2 of 97%.

Initial investigations show:

Haemoglobin 143 g/L Male: (135-180)

Female: (115 - 160)

Platelets 382 \* 109/L (150 - 400)

White Blood Cells 9.6 \* 109/L (4.0 - 11.0)

Eosinophils 1.6 \* 109/L (<0.4)

Na+ 138 mmol/L (135 - 145)

K+ 5.0 mmol/L (3.5 - 5.0)

Bicarbonate 25 mmol/L (22 - 29)

Urea 7.3 mmol/L (2.0 - 7.0)

Creatinine 152µmol/L (55 - 120)

Urine dipstick:

Protein +

Leukocytes +++

Glucose -

Nitrites -

What is the most likely diagnosis?

A.Acute interstitial nephritis

B.Focal segmental glomerulosclerosis

C.Goodpasture syndrome

D.Post-streptococcal glomerulonephritis

E.Urinary tract infection

Answer:Acute interstitial nephritis

Explanation:

Acute interstitial nephritis causes an 'allergic' type picture consisting usually of raised urinary WCC, IgE, and eosinophils, alongside impaired renal function

Important for meLess important

The most likely diagnosis in this patient is acute interstitial nephritis, likely triggered by his course of amoxicillin. Both this and allopurinol are known to cause drug-induced interstitial nephritis. This is a typical presentation of fever and rash in conjunction with renal impairment and hypertension. The diagnosis is supported by the high levels of white cells in the urine, raised serum creatinine and eosinophilia.

Focal segmental glomerulosclerosis is a nephrotic syndrome which would normally present with features of peripheral oedema and high-grade proteinuria. It is unlikely to be the diagnosis here as the patient does not present with these features.

Goodpasture syndrome is the eponymous term for anti-glomerular basement membrane antibody-mediated disease which causes both glomerulonephritis and pulmonary haemorrhage. This is unlikely to be the diagnosis for this patient as whilst there is evidence of glomerulonephritis, he does not have any symptoms of pulmonary haemorrhage such as haemoptysis or low oxygen levels. It would also not account for the rash he presents with.

Post-streptococcal glomerulonephritis usually occurs in children, several weeks after a skin or throat infection. The main presentations are usually haematuria and oedema neither of which this patient has, making this diagnosis unlikely.

Urinary tract infection should always be considered in a patient with fever and positive leukocytes on urinalysis however it is unlikely to be the diagnosis here as this patient here does not describes any urinary symptoms such as frequency or urgency. Also, urinary tract infections are normally bacterial so would not cause eosinophilia. A diagnosis of urinary tract infection would also not account for the rash.

Question:

A 17-year-old primiparous woman, who is 37 weeks pregnant, attends the emergency department with a large volume of painful vaginal bleeding. This started 30 minutes ago and presented as a sudden gush of blood. She had been feeling unwell for a few days, feeling lightheaded whenever she stood up. She has not engaged with antenatal care, apart from her initial booking visit.

On examination, her heart rate is 130 beats per minute, her respiratory rate is 21 breaths per minute and her blood pressure is 96/65 mmHg. She has a tense abdomen, with a firm, fixed uterus.

Which of the following is most likely to put her at risk for this complication?

A.Age

B.Macrosomia

C.Polyhydraminos

D.Primiparous

E.Triploid (69, XXX)

Answer:Polyhydraminos

Explanation:

Polyhydramnios is a risk factor for placental abruption

Important for meLess important

This woman has the classical presentation of placental abruption - there is painful vaginal bleeding and resultant maternal shock. The tense, firm uterus is also a classical finding on examination.

There are many different risk factors for placental abruption, which may be remembered using the following mnemonic.

ABRUPTION:

A for Abruption previously;

B for Blood pressure (i.e. hypertension or pre-eclampsia);

R for Ruptured membranes, either premature or prolonged;

U for Uterine injury (i.e. trauma to the abdomen);

P for Polyhydramnios;

T for Twins or multiple gestation;

I for Infection in the uterus, especially chorioamnionitis;

O for Older age (i.e. aged over 35 years old);

N for Narcotic use (i.e. cocaine and amphetamines, as well as smoking)

Polyhydramnios is correct as it is one of the known risk factors for placental abruption. This is due to an increase in pressure within the uterine space, caused by the extra fluid.

Age is incorrect. This woman would be considered at the 'extremes of age' for pregnancy, being 17 years old, but it is actually older age that is a risk factor, not younger age.

Primiparous is incorrect. Multiparity may be considered a minor risk factor in the development of placental abruption - but being primiparous does not increase risk.

Macrosomia is incorrect as it in itself is not known to be a risk factor for placental abruption. If the macrosomia was due to gestational diabetes, this may lead to polyuria and polyhydramnios which is a risk factor - but we cannot assume the cause of the macrosomia.

Triploidy is incorrect as it is not a risk factor in itself. It may cause oligohydramnios, not polyhydramnios. Also, most triploid foetuses will miscarry very early in development and would not be expected to be seen at 37 weeks gestation.

Question:

A 75 year-old male patient presents with a feeling of weakness of the legs. On examination there are also some skin changes present, with purple plaques on the dorsum of the hands. You suspect a diagnosis of dermatomyositis. Which of the following underlying conditions is associated with dermatomyositis and should be considered?

A.Liver cirrhosis

B.Chronic renal failure

C.Haemochromatosis

D.Internal malignancy

E.Pulmonary fibrosis

Answer:Internal malignancy

Explanation:

Dermatomyositis is usually an autoimmune condition, being most common in women aged 50-70. However, it can also be a paraneoplastic disease, with ovarian, breast and lung tumours being the most common underlying cancers. The possibility of underlying malignancy should be considered, especially in older patients.

Question:

A 35-year-old runner presents with heel pain. On examination, there is diffuse tenderness which is worse on the medial aspect of the heel bed. Although the patient has stopped running for the past week, the pain is aggravated by being on their feet at work all day. Pain is worse when you ask them to walk on their toes. What is the most likely diagnosis?

A.Achilles tendonitis

B.Plantar fasciitis

C.S1 radiculopathy

D.Morton's neuroma

E.Subcalcaneal bursitis

Answer:Plantar fasciitis

Explanation:

This is typical of plantar fasciitis. It is exacerbated by walking on tip toes unlike subcalcaneal bursitis and is the most common cause of heel pain in adults. Pain in Achilles tendonitis is at the calcaneal insertion of the tendon or further up the tendon depending on the area affected. Thompson's test excludes rupture of the tendon. S1 radiculopathy would cause sensory loss along the lateral aspect of the foot and may lead to reduced dorsiflexion of the foot. Morton's neuroma is a thickening of the tissue around the nerve usually between the 3rd and 4th toes. Pain tends to be on the ball of the foot.

Question:

A 65-year-old man with a history of hypertension is reviewed. As part of routine blood tests to monitor his renal function whilst taking ramipril the following blood tests are received:

Na+ 140 mmol/l

K+ 4.8 mmol/l

Urea 6.2 mmol/l

Creatinine 102 µmol/l

eGFR 68 ml/min

A urine dipstick is subsequently performed which is normal and a renal ultrasound sound shows normal-sized kidneys with no abnormality detected.

What stage of chronic kidney disease does this patient have?

A.No chronic kidney disease

B.Chronic kidney disease stage 4

C.Chronic kidney disease stage 3

D.Chronic kidney disease stage 2

E.Chronic kidney disease stage 1

Answer:No chronic kidney disease

Explanation:

CKD: only diagnose stages 1 & 2 if supporting evidence to accompany eGFR

Important for meLess important

Chronic kidney disease is only diagnosed in this situation if supporting tests such as urinalysis or renal ultrasound are abnormal

Question:

A 36-year-old woman is one of your formal patients on an inpatient psychiatric ward. One of the patient's work colleagues rings the ward asking after the patient. What is the most appropriate initial course of action?

A.Give the colleague a full summary of the patient's progress so far

B.Only give limited information about the patient e.g. 'she's doing well'

C.Inform the colleague that the patient is on the ward and that she can come and see her (but do not give details out over the phone)

D.Tell the colleague to call back later

E.Do not confirm the presence of the patient

Answer:Do not confirm the presence of the patient

Explanation:

In some cases, confirmation of a patient's presence may reveal sensitive information (e.g. on a mental health ward). The fact that it is a work colleague who is calling and not a close family member etc. also raises the question as to whether disclosure is really necessary. See http://www.gmc-uk.org/guidance/ethicalguidance/confidentiality.asp

Question:

A 22-year-old male presents to the emergency room with pain in the left knee following a twisting injury during a rugby match. He states that it has gradually swollen over the past 24 hours, and he is unable to fully extend it. On examination you note tenderness over the medial joint line, a joint effusion, and the joint is held in a flexed position. There is no laxity on valgus stress test.

What is the most likely diagnosis?

A.Medial meniscus tear

B.Lateral meniscus tear

C.Anterior cruciate ligament (ACL) tear

D.Posterior cruciate ligament (PCL) tear

E.Medial collateral ligament (MCL) tear

Answer:Medial meniscus tear

Explanation:

Gradual swelling of the knee is suggestive of effusion which often occurs due to meniscal injury. Tenderness over the medial joint line suggests a medial meniscus tear.

An ACL or PCL tear would more commonly present with rapid joint swelling due to bleeding within the joint capsule (haemarthrosis).

Isolated MCL injuries rarely cause a large effusion. In addition, the lack of laxity on the valgus stress test makes an MCL injury less likely.

Question:

A 43-year-old man is admitted to the Emergency Department with a rash and feeling generally unwell. He is known to have epilepsy and his medication was recently changed to phenytoin three weeks ago. Around one week ago he started to develop mouth ulcers associated with malaise and a cough. Two days ago he started to develop a widespread red rash which has now coalesced to form large fluid-filled blisters, covering around 30% of his body area. The lesions separate when slight pressure is applied. On examination his temperature is 38.3ºC and pulse 126 / min. Blood results show:

Na+ 144 mmol/l

K+ 4.2 mmol/l

Bicarbonate 19 mmol/l

Urea 13.4 mmol/l

Creatinine 121 µmol/l

What is the most likely diagnosis?

A.Phenytoin-induced neutropaenia

B.Drug-induced lupus

C.Kawasaki disease

D.Toxic epidermal necrolysis

E.Staphylococcal Scalded Skin syndrome

Answer:Toxic epidermal necrolysis

Explanation:

Question:

A 67-year-old woman complains of palpitations. Prior to arranging a 24-hour ECG you arrange a resting ECG:

© Image used on license from Dr Smith, University of Minnesota

What is shown on the ECG?

A.First degree heart block

B.Normal ECG

C.Previous anterior myocardial infarction

D.Previous inferior myocardial infarction

E.Partial right bundle branch block

Answer:Normal ECG

Explanation:

This ECG shows normal sinus rhythm with no diagnostic changes.

Question:

A mother brings her child as she is concerned he is clumsy compared to other similar aged children. At what age would the average child acquire a good pincer grip?

A.5-6 months

B.7-8 months

C.12 months

D.18 month

E.2 years

Answer:12 months

Explanation:

Question:

A 17-year-old boy presents to the emergency department with pain in his right testicle. The pain came on over the last hour and he describes it as a 10/10 pain, he has suffered from this 3 times before, but he has never presented as each time it goes away within an hour. On examination, there is redness of the scrotum along with swelling.

After being admitted the pain again subsides as does some of the swelling.

Given his presentation which of the following treatments should be given in this case?

A.Emergency surgical fixation

B.Elective surgical fixation

C.Orchiectomy

D.Co-amoxiclav

E.No treatment needed

Answer:Emergency surgical fixation

Explanation:

Consider prophylactic fixing in intermittent testicular torsion

Important for meLess important

This question is asking about a boy presenting with acute testicular pain fitting with the presentation of testicular torsion. As this patient has suffered from repeated episodes of intermittent testicular torsion, the most appropriate treatment would be that of emergency surgical fixation. Even though this patient's testicles have undergone detorsion the treatment is still needed urgently as they are at high risk of immediate retorsion.

As established above, elective surgical fixation is not quick enough for this patients presentation due to his high risk.

Orchiectomy is the removal of the testicle and would be considered in cases that have lasted for greater than 24 hours or where surgery finds dead tissue.

Co-amoxiclav is not indicated as this patient has no indication of infection.

No treatment is incorrect as even though this patient has now undergone detorsion, it is important that he undergoes prophylactic fixing.

Question:

A 50-year-old man with a history of Hodgkin lymphoma is in need of a blood transfusion. The oncology team request irradiated blood products instead of regular blood products because of his background of Hodgkin lymphoma.

Why is this special blood product needed for this particular patient?

A.To avoid anaphylactic reactions to blood products

B.To avoid transfusion related circulatory overload

C.To avoid transfusion-associated graft versus host disease

D.To further reduce the risk of infections from blood products

E.To reduce the risk of haemolytic transfusion reactions

Answer:To avoid transfusion-associated graft versus host disease

Explanation:

Irradiated blood products are used to avoid transfusion-associated graft versus host disease

Important for meLess important

Irradiated blood products are often treated with gamma or x-ray radiation to deplete T-lymphocytes in order to prevent transfusion-associated graft versus host disease and is, therefore, the correct answer.

Irradiated blood products do not reduce the risk of reactions, including anaphylaxis, but in some cases, blood products can go through a process called 'washing' which involves the red cells being re-suspended in saline solution. This is shown to reduce the risk of severe reaction in patients that have reacted badly to previous blood products.

Irradiated blood products do not change the risk of overload when blood products are given as it is usually to do with the amount of blood being given to patients, the rate at which it is given, and the patients history e.g. history of heart failure. In some trusts, furosemide is often given with blood products to reduce the risk of fluid overload in these groups of patients.

A haemolytic transfusion reaction is usually to do with patients receiving the incorrect blood type and not to do with blood products being irradiated and is, therefore, the incorrect answer.

Question:

A 21-year-old man presents to the emergency department after developing acute shortness of breath after playing football.

On examination, his airway is patent and he is talking in short sentences, his respiratory rate is 24 /min, his oxygen saturations are 97% on room air, his pulse is 115 bpm, and his blood pressure is 120/80 mmHg. His heart sounds are normal on auscultation, and a widespread wheeze is heard.

His best peak flow reading is 220 L/min, compared to his usual reading of 460 L/min.

Given the likely diagnosis, what severity would this presentation be classified as?

A.Mild

B.Moderate

C.Severe

D.Life-threatening

E.Near-fatal

Answer:Severe

Explanation:

The features of acute severe asthma are: PEFR 33-50% best or predicted, inability to complete full sentences, RR >25/min and pulse >110 bpm

Important for meLess important

Severe is correct. Any one of peak flow 33-50% of best or predicted, inability to complete full sentences, respiratory rate over 25/minute or pulse over 110 beats per minute confirms acute severe asthma. This patient has a peak flow that is under 50% of his best and a heart rate of 115 beats per minute, therefore meeting the criteria for acute severe asthma.

Mild is incorrect. There is no such category as mild asthma exacerbation. By the time someone's peak flow is 75% or under of best / predicted and their symptoms are increasing, they are having a moderate exacerbation of asthma.

Moderate is incorrect. This is diagnosed in a patient with increased asthma symptoms, a peak flow reading that is 50-75% of their best or predicted reading and who has no features of acute severe asthma. This patient has two features of severe asthma (peak flow and heart rate).

Life-threatening is incorrect. This is diagnosed in a patient with acute severe asthma and any one of oxygen saturations under 92%, peak flow under 33% of best or predicted, altered conscious level, exhaustion, arrhythmia, hypotension, cyanosis, silent chest or poor respiratory effort. If a blood gas has been done, PaO2 under 8kPa or normal PaCO2 are also features of life-threatening asthma. None of these features is present in this patient.

Near-fatal is incorrect. This is diagnosed in patients with rising PaCO2 or in those requiring mechanical ventilation with raised inflation pressures.

Question:

A 19-year-old man presents to the GP surgery with a new onset of painful perioral ulcers. His girlfriend of 3 months currently has similar ulcers. Which of the following organisms is most likely responsible?

A.Staphylococcus aureus

B.Treponema pallidum

C.Herpes simplex virus 2

D.Adenovirus

E.Herpes simplex virus 1

Answer:Herpes simplex virus 1

Explanation:

HSV-1 is more commonly associated with oral herpes

Important for meLess important

HSV-2 is more commonly associated with genital herpes.

Adenovirus is a rare cause of genital ulceration.

Syphilis can cause oral ulceration (chancre), but this is usually painless and more common in men who have sex with men.

Question:

A 33-year-old woman presents with a one-week history of morning sickness. She is 8 weeks pregnant. She can keep down oral fluid but has vomited three times in the previous 24 hours. There are no acid reflux symptoms, abdominal pain, vaginal bleeding or urinary symptoms.

She takes folic acid and is not on any other medications.

On examination, her temperature is 36.7ºC. Blood pressure is 101/60mmHg and heart rate is 82/min. Her abdomen is soft and non-tender. Urine B-HCG is positive and urine dipstick shows 1+ ketone only. There is no weight loss.

What is the most appropriate management option for this patient?

A.Arrange hospital admission

B.Commence on oral cyclizine

C.Commence on oral domperidone

D.Commence on oral omeprazole

E.Commence on oral ondansetron

Answer:Commence on oral cyclizine

Explanation:

Antihistamines are first-line in the management of nausea & vomiting in pregnancy/hyperemesis gravidarum

Important for meLess important

The correct answer is commence on oral cyclizine. Antihistamines are first-line in the management of nausea & vomiting in pregnancy/hyperemesis gravidarum.

Ondansetron (a 5-HT3 reception antagonist) and domperidone (dopamine receptor antagonist) are second-line antiemetic. Therefore, the following options commence on oral domperidone and commence on oral ondansetron are incorrect.

Hospital admission is usually considered if the woman has the following features:

Is unable to tolerate oral antiemetics or oral fluids

Symptoms are not controlled with management in primary care

Suspected hyperemesis gravidarum

This patient's observation is normal. There is weight loss or history to suggest that she cannot tolerate oral antiemetic or oral fluids. Therefore, the option arrange hospital admission is incorrect.

The option commence on oral omeprazole is incorrect. This patient has not reported any symptoms of dyspepsia, therefore there is no role for a proton pump inhibitor.

Question:

A 35-year-old man with a history of schizophrenia is brought to the Emergency Department by worried friends due to drowsiness. On examination he is generally rigid. A diagnosis of neuroleptic malignant syndrome is suspected. Each one of the following is a feature of neuroleptic malignant syndrome, except:

A.Renal failure

B.Pyrexia

C.Elevated creatine kinase

D.Usually occurs after prolonged treatment

E.Tachycardia

Answer:Usually occurs after prolonged treatment

Explanation:

Neuroleptic malignant syndrome is typically seen in patients who have just commenced treatment. Renal failure may occur secondary to rhabdomyolysis

Question:

A 33-year-old is admitted to the Emergency Department with suspected renal colic. He has a ultrasound that shows a probable stone in the left ureter. What is the most appropriate next step with respect to imaging?

A.Non-contrast CT (NCCT)

B.Micturating cystourethrogram

C.Intravenous urography (IVU)

D.Plain radiography KUB

E.MRI

Answer:Non-contrast CT (NCCT)

Explanation:

The 2015 BAUS guidelines state:

Following initial US assessment, NCCT should be used to confirm stone diagnosis in patients with acute flank pain, because it is superior to IVU.

Question:

A 16-year-old female presents with concerns that her periods have not started. Her sisters' menarche was at age 13. On examination, the patient is short, showing no signs of development of secondary sexual characteristics and has widely spaced nipples. A systolic murmur was also noted to be present under the left clavicle.

Which finding is keeping with the most likely diagnosis of this patient?

A.Increased FSH/LH

B.Imperforate hymen

C.Increase in prolactin

D.Increased serum androgen levels

E.Increased oestrogen

Answer:Increased FSH/LH

Explanation:

Raised FSH/LH in primary amenorrhoea - consider gonadal dysgenesis (e.g. Turner's syndrome)

Important for meLess important

The patient presents with widely spaced nipples and primary amenorrhoea which are characteristics seen in Turner's syndrome. Turner's syndrome is caused by the presence of only one sex chromosome (X) or a deletion of the short arm of one of the X chromosomes which results in the characteristics which commonly are manifested.

Turner's syndrome is associated with primary amenorrhoea which is seen with raised gonadotrophin levels (FSH/LH). Gonadal dysgenesis causes an increase in FSH/LH by the negative feedback cycle to try to compensate for the lack of oestrogen and progesterone produced by the ovaries. Therefore, increased FSH/LH is in keeping with the diagnosis described in the scenario.

Imperforate hymen typically presents with cyclical pain and usually, an examination will reveal the development of secondary sexual characteristics.

Increased prolactin levels will present with galactosemia which is not indicated by the question stem.

Increased serum androgen levels are keeping with the polycystic ovarian syndrome. This will present a history of oligomenorrhoea, obesity, acne and hirsutism.

The question stem is keeping with a diagnosis of Turner's syndrome. This is usually seen with decreased levels of oestrogen and progesterone due to gonadal dysgenesis resulting in a compensatory increase in serum FSH and LH. Therefore, you would not expect to see a rise in serum oestrogen levels.

Question:

A 32-year-old man presents to the Emergency Department with excessive urination and thirst. He is otherwise well. His past medical history includes asthma and bipolar disorder. His drug history includes a salbutamol inhaler and lithium. He has no significant family history. Examination is unremarkable. Blood tests are as follows:

Hb 142 g/L Male: (135-180)

Female: (115 - 160)

Platelets 201 \* 109/L (150 - 400)

WBC 5.2 \* 109/L (4.0 - 11.0)

Na+ 148 mmol/L (135 - 145)

K+ 3.7 mmol/L (3.5 - 5.0)

Urea 5.1 mmol/L (2.0 - 7.0)

Creatinine 86 µmol/L (55 - 120)

CRP 3 mg/L (< 5)

Serum osmolality 312 mOsm/kg (285-295)

The following results are subsequently obtained:

Urine osmolality post-water deprivation 235 mOsm/kg

Urine osmolality post-desmopressin 240mOsm/kg

What is the mechanism of the likely diagnosis?

A.Desensitisation of the kidneys' response to anti-diuretic hormone

B.Mutation of the vasopressin receptors in the kidneys

C.Mutation of the water-reabsorption channels in the kidneys

D.Suppression of anti-diuretic hormone production in the hypothalamus

E.Suppression of anti-diuretic hormone release from the posterior pituitary gland

Answer:Desensitisation of the kidneys' response to anti-diuretic hormone

Explanation:

Diabetes insipidus in patients taking lithium mechanism: lithium desensitizes the kidney's ability to respond to ADH in the collecting ducts

Important for meLess important

The correct answer is 'Desensitisation of the kidneys' response to anti-diuretic hormone'.

The diagnosis here, given the high serum osmolality, low urine osmolality post-water deprivation and failure to respond to desmopressin is nephrogenic diabetes insipidus. The patient takes lithium and this is a well-known cause. The correct answer is the desensitisation of the the kidneys' response to anti-diuretic hormone (ADH). The exact mechanism by which it achieves this is not well understood - it is thought to be a combination of interference with the ADH receptors in the kidney, as well as downregulation of the aquaporin-2 channels which normally reabsorb water.

Suppression of anti-diuretic hormone release from the posterior pituitary gland is incorrect - this is the mechanism by which alcohol binge-drinking leads to polyuria.

Suppression of ADH production in the hypothalamus is incorrect - as described above, lithium interferes with the kidneys.

Mutation of the vasopressin (ADH) receptor is a known cause of nephrogenic diabetes insipidus - however, this is far less likely to be the cause than lithium toxicity, given that we know the patient takes lithium for bipolar disorder, and that lithium causes nephrogenic diabetes insipidus much more commonly than the prevalence of genetic causes.

Mutation of the aquaporin-2 channels is also possible cause, but even less likely than mutation of the vasopressin receptor.

Question:

A 77-year-old man presents to the haematology clinic after being referred by his general practitioner with facial plethora and splenomegaly, especially following a hot bath. The doctor performs some blood tests that show the following:

Hb 190 g/L Male: (135-180) Female: (115 - 160)

Platelets 450 \* 109/L (150 - 400)

WBC 13.1 \* 109/L (4.0 - 11.0)

Haematocrit 0.63 (0.45 - 0.52)

JAK2 mutation positive

The doctor explains the diagnosis to the patient and explains to him that he is at risk of developing blood clots.

Which one of the following management options would reduce his risk?

A.Aspirin

B.Hydroxyurea

C.Imatinib

D.Warfarin

E.Phosphorus-32

Answer:Aspirin

Explanation:

Aspirin is given to patients with polycythaemia vera to reduce the risk of thrombotic events

Important for meLess important

The correct answer is aspirin. This patient has polycythaemia vera, a myeloproliferative disorder caused by clonal proliferation of a marrow stem cell leading to an increase in red cell volume. A mutation in JAK2 is present in approximately 95% of patients. The classic features are pruritus, typically after a hot bath, splenomegaly and plethoric appearance. These patients are at an increased risk of thrombotic events due to blood's hyperviscosity. In order to reduce the risk, they are prescribed aspirin.

Hydroxyurea is used in patients with polycythaemia vera as a chemotherapeutic agent. It slightly increases the risk of secondary leukaemia.

Imatinib is an inhibitor of the tyrosine kinase used as first-line treatment for chronic myeloid leukaemia. The increase in haematocrit and the positive JAK2 mutation make a diagnosis of polycythaemia vera more likely.

Warfarin is an oral anticoagulant that has no role in the management of polycythaemia vera.

Phosphorus-32 therapy is a type of internal radiotherapy. It can be used in the management of polycythaemia vera but does not reduce the risk of thrombotic events itself. It slightly increases the risk of secondary leukaemia.

Question:

A 27-year-old woman presents to her GP with a 5-day history of widespread muscle cramps and numbness of her hands and feet. She also describes a tingling sensation around her mouth.

She was diagnosed with epilepsy 6 weeks ago and has been started on phenytoin.

Which of the following would most likely be seen in her blood results?

A.Corrected calcium of 1.5 mmol/L

B.Potassium of 2.0 mmol/L

C.Corrected calcium of 3.5 mmol/L

D.Potassium of 7.0 mmol/L

E.Sodium of 160 mmol/L

Answer:Corrected calcium of 1.5 mmol/L

Explanation:

Key features of hypocalcaemia - perioral paraesthesia, cramps, tetany and convulsions

Important for meLess important

This patient is describing features typically associated with hypocalcaemia. Hypocalcaemia is a known side effect of phenytoin use. Due to altered neuromuscular excitability, hypocalcaemia can lead to seizures if not promptly treated. Mild (1.9-2.2 mmol/L) asymptomatic hypocalcaemia is typically managed with oral supplementation whilst symptomatic or severe (<1.9 mmol/L) hypocalcaemia is likely to require IV replacement.

For hypercalcaemia, remember; bones (bone pain), stones (renal calculi), groans (constipation), thrones (polyuria) and moans (fatigue, depression, confusion).

The patient does not have any muscle weakness or cardiac arrhythmias which are associated with hyperkalaemia.

Hypokalaemia is often asymptomatic, but severe hypokalaemia (<2.5mmol/L) may be associated with ascending muscle weakness and cardiac arrhythmias including torsades de pointes. This does not fit with the clinical picture described above.

Hypernatraemia is associated with nausea and vomiting, headache and confusion which this patient is not experiencing.

Question:

A 62-year-old man comes for review. In the past month he has had two episodes of 'passing out'. The first occurred whilst going upstairs. The second occurred last week whilst he was getting out of a swimming pool. There were no warning signs prior to these episodes. He was told by people who witnessed the episode last week that he was only 'out' for around 15 seconds. He reports feeling 'groggy' for only a few seconds after the episode. On examination pulse is 90 / minute, blood pressure 110/86 mmHg, his lungs are clear and there is a systolic murmur which radiates to the carotid area. Which one of the following investigations should be arranged first?

A.24 hour ECG monitor

B.Echocardiogram

C.Exercise tolerance test

D.CT head

E.Carotid doppler

Answer:Echocardiogram

Explanation:

The systolic murmur may be a pointer to aortic stenosis (AS). Syncope is a late sign and typically occurs on exertion in patients with AS. It is therefore important to exclude this condition as a priority.

An exercise tolerance test would be contraindicated in a patient with suspected aortic stenosis.

Question:

A man undergoing regular peritoneal dialysis presents with non-severe abdominal pain. He reports that his dialysate fluid, during the most recent exchange, has also become cloudy, he now has a temperature of 37.8ºC. On examination, he has abdominal rebound tenderness but no guarding. Peritonitis is suspected and samples of dialysate fluid are sent to microbiology for analysis.

What organisms are most likely to be isolated?

A.Candida species

B.Escherichia coli

C.Pseudomonas aeruginosa

D.Staphylococcus aureus

E.Staphylococcus epidermidis

Answer:Staphylococcus epidermidis

Explanation:

Coagulase-negative Staphylococcus is the most common cause of peritonitis secondary to peritoneal dialysis

Important for meLess important

The most commonly isolated organism in peritonitis associated with peritoneal dialysis is Staphylococcus epidermidis, which is a coagulase-negative staphylococci and detected in up to 40% of all cases. The most common source of infection is either intraluminal, due to failure to follow appropriate sterile techniques, or directly from the skin around the tunnel site. However, due to the high mortality associated with this complication, broad-spectrum antibiotics covering both Gram-positive and Gram-negative organisms are commenced before obtaining results from cultures.

Approximately 5% of all cases are linked to a fungal infection, most commonly of which would be Candida.

Escherichia coli is the most common Gram-negative infections causing peritonitis in peritoneal dialysis but is found in approximately 15% of all cases and so significantly less likely than coagulase-negative staphylococci.

Pseudomonas aeruginosa is found in less than 5% of all cases.

Staphylococcus aureus is found in less than 5% of all cases.

Question:

A 65-year-old man attends a stroke clinic following a transient ischaemic attack.

On examination, he has a diastolic murmur loudest over the apex. His pulse rate is 90 bpm and irregular, blood pressure is 130/90 mmHg, and respiratory rate is 20 breaths per minute. An ECG shows an irregular ventricular rate and absent P waves.

What is the most likely cause of the murmur?

Aortic regurgitation

10%

Left atrial myxoma

6%

Mitral regurgitation

17%

Mitral stenosis

65%

Tricuspid stenosis

2%

Diastolic murmur + AF → ?mitral stenosis

Important for meLess important

Mitral stenosis is associated with a mid-diastolic murmur loudest over the apex and accentuated with the patient in a left lateral position. It commonly causes atrial fibrillation (secondary to left atrial enlargement) which may result in embolic sequelae (e.g. stroke, TIA, mesenteric ischaemia).

Aortic regurgitation also causes a diastolic murmur (specifically, early diastolic) but is loudest over the aortic area and is less commonly associated with AF.

Left atrial myxoma can imitate the murmur of mitral stenosis (tumour ‘plop’) and in fact may cause embolic sequelae and AF, however, it is far rarer than mitral stenosis.

Mitral regurgitation (MR) is associated with a pansystolic murmur over the apex radiating to the axilla. MR can result in dyspnoea, fatigue and palpitations (depending on the severity of the incompetence). Like mitral stenosis, MR can cause AF, therefore the differentiating feature is the timing of the murmur (diastolic in mitral stenosis, systolic in MR).

Tricuspid regurgitation causes a systolic murmur over the tricuspid area. It is exceptionally rare in developed countries and is most often caused by rheumatic fever or carcinoid syndrome. It is not commonly associated with AF or embolic sequelae.

Question:

A 32-year-old woman has given birth to a healthy baby 2 weeks ago with no known complications. She enquires about iron supplementation. Her blood tests show:

Hb 107 g/L Male: (135-180)

Female: (115 - 160)

What haemoglobin cut-off should be used in order to commence treatment in this patient?

A.95

B.100

C.105

D.110

E.115

Answer:100

Explanation:

A cut-off of 100 g/Lshould be used in the postpartum period to determine if iron supplementation should be taken

Important for meLess important

100 is the correct cut-off for women in the postpartum period with uncomplicated deliveries. This woman's Hb is 107, therefore she does not require supplementation at this stage.

While memorising target numbers can be a tedious process, these are a common topic in the AKT and easy to learn as they decrease by 5 units on each 'step':

115 for non-pregnant women, 110 in early pregnancy, 105 in later pregnancy, and 100 after childbirth.

95 is incorrect as it is not a target for haemoglobin in pregnancy or postpartum, although individual Hb targets may be needed for patients with haemoglobinopathies such as sickle cell or thalassaemia.

105 is incorrect for this woman as she is in the postpartum period, but it is a correct target for the second and third trimesters.

110 is incorrect for this woman as she is in the postpartum period, but it is a correct target for the first trimester.

115 is the target for non-pregnant, non-postpartum women and therefore is not the correct answer in this specific case.

Question:

A 69-year-old man who is known to have Alzheimer's disease is reviewed in clinic. His latest Mini Mental State Examination (MMSE) score is 18 out of 30, suggesting 'moderate' dementia. According to NICE guidelines, what further action should be taken?

A.Supportive care + memantine

B.Supportive care + trial of citalopram

C.Continue supportive care

D.Supportive care + donepezil + low-dose aspirin

E.Supportive care + donepezil

Answer:Supportive care + donepezil

Explanation:

NICE recommend the following:

Acetylcholinesterase (AChE) inhibitors (donepezil, galantamine, and rivastigmine) [NICE, 2006; NICE, 2011]:

These drugs can be used for mild to moderate Alzheimer's disease but must only be prescribed by healthcare professionals with expertise in this area ...

Memantine is an option for managing Alzheimer's disease for people with:

Moderate Alzheimer's disease who are intolerant of, or have a contraindication to, AChE inhibitors or

Severe Alzheimer's disease.

Question:

A 14-year-old boy is brought for review. He is normally fit and well and hasn't seen a doctor for over five years. His mother has been increasingly concerned about his behaviour in the past few weeks. She describes him staying up late at night, talking quickly and being very irritable. Yesterday he told his mother he was planning to 'take-over' the school assembly and give 'constructive criticism' to his teachers in front of the other pupils. He feels many of his teachers are 'underperforming' and need to be 'retaught' their subjects by him. He admits to trying cannabis once around six months ago and has drank alcohol 'a few times' in the past year, the last time being two weeks ago. Prior to his deterioration a few weeks ago his mother describes him as a happy, well-adjusted, sociable young man. Which one of the following is the most likely diagnosis?

A.Psychotic depression

B.Cannabis-induced psychosis

C.Mania

D.Alcoholic hallucinosis

E.Asperger's syndrome

Answer:Mania

Explanation:

Cannnabis and alcohol related problems are very unlikely given how long ago he used those substances.

Question:

You have been asked by a midwife to complete a newborn examination on a 12-hour old neonate. The parents have noticed that his penis looks abnormal and ask if you could please have a look at this. On examination, you note his urethral meatus is located on the ventral aspect of the glans and he has a hooded prepuce. He has passed urine with a good stream observed by the midwife earlier in the day.

How should the doctor proceed?

A.Refer to a specialist for possible surgery around 12 months of life

B.Refer to a specialist for surgery in the first 1 month of life

C.Refer to a specialist for urgent surgery within 4 hours

D.Tell parents no referral or further review is needed

E.Tell parents they should ensure he is circumcised

Answer:Refer to a specialist for possible surgery around 12 months of life

Explanation:

Hypospadias surgery is typically performed at around 12 months of age

Important for meLess important

Refer to a specialist for possible surgery around 12 months of age is correct. This is considered optimal timing taking many factors into account, including developmental milestones, tolerance of surgery and anaesthesia, size of the penis. It is referred to the specialist at the time of the diagnosis.

Refer to a specialist for surgery in the first 1 month of life is incorrect. This child has anterior hypospadias and is passing urine without problems, and therefore he has no indications for an urgent referral. An indication for a more urgent referral would be failure or difficulty to pass urine.

Refer to a specialist for urgent surgery within 4 hours is incorrect as this is not an urgent or life-threatening issue. An indication for a more urgent referral would be failure or difficulty to pass urine.

Telling parents no referral or further review is needed is incorrect. Hypospadias always requires a specialist referral even if mild. It is the specialist's responsibility alongside the parents to decide whether surgery is required.

Tell the parents they should ensure he is circumcised is incorrect. It is important to tell parents to NOT circumcise their child with hypospadias, as the prepuce may be used during corrective surgery.

Question:

A 52-year-old man presents to your GP practice with symptoms of dysuria and increased urinary frequency. These symptoms have been present for 48 hours and are accompanied by ongoing fever and nausea but no vomiting.

Past medical history includes asthma treated with salbutamol PRN and rheumatoid arthritis treated with methotrexate once weekly. This is the first time the patient has experienced lower urinary tract symptoms.

On examination; blood pressure 130/75mmHg, heart rate 80/min, temperature 37.8ºC, respiratory rate 14, saturation 98%.

What is the most appropriate management plan for this patient?

A.Nitrofurantoin 3 days only

B.Send urine culture and nitrofurantoin 7 days

C.Send urine culture and trimethoprim 3 days

D.Send urine culture, nitrofurantoin 7 days and routine referral to urology

E.Trimethoprim 7 days only

Answer:Send urine culture and nitrofurantoin 7 days

Explanation:

Men with lower UTIs should be treated for 7 days

Important for meLess important

Send urine culture and nitrofurantoin 7 days is the correct answer. A urine culture should be sent for all men with a suspected urinary tract infection (UTI) and they should be treated empirically with the first-line antibiotic being nitrofurantoin for 7 days.

Nitrofurantoin 3 days only would be an appropriate choice for a woman with an uncomplicated UTI where 3 days treatment is recommended and the first-line antibiotic provided there are no contraindications is nitrofurantoin. However, this is clearly a male patient and therefore does not follow NICE guidelines.

Send urine culture and trimethoprim 3 days is a partially correct answer. Sending a urine culture is appropriate for a male patient and trimethoprim is an appropriate antibiotic choice for an uncomplicated UTI. However, this patient is treated with methotrexate and therefore trimethoprim is contraindicated as an antibiotic choice as it can cause a dangerous interaction. This is also an inappropriate treatment course, as a male is recommended to have a course of 7 days rather than 3 days.

Send urine culture, nitrofurantoin 7 days and routine referral to urology is an appropriate option in terms of sending a urine culture, an appropriate first-line antibiotic choice for a lower urinary tract infection and the antibiotic course is a sufficient length. However, for this patient, it is the first time that they have experienced a lower urinary tract infection, and therefore a routine referral to urology is not required. If there were to be no improvement after 48 hours of antibiotics then a diagnosis of acute prostatitis or acute pyelonephritis should be considered.

Trimethoprim 7 days only is an inappropriate management plan for two reasons. Firstly, trimethoprim is contraindicated in a patient who is taking methotrexate due to the dangerous interaction of the two drugs. Secondly, this patient should have a urine culture sent before empirically starting antibiotics as recommended by NICE guidelines.

Question:

A 53-year-old man presents to the emergency department with acute severe abdominal pain and vomiting. He has not passed any stool or flatus for 48 hours. For the past year, he has had repeated episodes of right upper quadrant pain that was colicky in nature. He has no significant past medical, family, or drug history.

A plain abdominal x-ray is taken that demonstrates multiple dilated loops of small bowel. There is also air in the biliary tree.

What is the most likely diagnosis?

A.Sigmoid volvulus

B.Gallstone ileus

C.Common bile duct perforation

D.Mirizzi's syndrome

E.Caecal cancer

Answer:Gallstone ileus

Explanation:

In gallstone ileus, a plain abdominal film classically shows small bowel obstruction and air in the biliary tree

Important for meLess important

This patient has patient has a small bowel obstruction and pneumobilia. This is a typical picture for gallstone ileus. He also gives a history that reflects chronic cholecystitis. In gallstone ileus, a gallstone enters the small intestine where it lodges in the ileocaecal valve. It is usually on a background of chronic cholecystitis. A rarer condition is Bouveret's syndrome which is similar but the gallstone lodges in the duodenum.

The other answers:

1) The abdominal x-ray does not demonstrate a volvulus. Sigmoid volvulus would produce the classic 'coffee-bean' sign

2) Common bile duct perforation would induce peritonism but does not explain the bowel obstruction. It also would not produce pneumobilia

3) Mirizzi's syndrome is where a gallstone within the gallbladder compresses the bile duct to cause an obstructive jaundice

4) There are no symptoms to suggest malignancy. Further, whilst a malignancy could cause a complete obstruction, it would not be so acute in its presentation

Question:

You are called to see a patient by the nurse on your night shift. The patient is a 74-year-old gentleman whose heart rate has suddenly increased to 154 beats/minute. His blood pressure is 130/83 mmHg, his respiratory rate is 18 breaths/minute. He is otherwise feeling well. You order an ECG.

The ECG shows a narrow complex tachycardia with left heart strain. There is no ST segment elevation or T wave depression.

What is the initial management of this patient?

A.Electrical cardioversion

B.Adenosine

C.Oral beta-blocker

D.IV beta-blocker

E.Valsalva manoeuvre

Answer:Valsalva manoeuvre

Explanation:

Valsalva manoeuvres is the first-line treatment for supraventricular tachycardia

Important for meLess important

This patient has a supraventricular tachycardia as demonstrated by the narrow complexes on the ECG. The initial treatment is a valsalva manoeuvre. Valsalva manoeuvre blocks the atrio-ventricular node and should stop the tachycardia as the tachycardia is caused by a reentrant pathway.

Electrical cardioversion is not indicated as the patient shows no adverse sign such as syncope or shock. If the patient did have adverse signs electrical cardioversion would be the first line treatment.

Adenosine is only indicated if valsalva manoeuvre does not succeed in stopping the tachycardia.

Beta-blockers are not initially indicated as they do not block the atrio-ventricular node and thus would not slow down the tachycardia. If the tachycardia was to persist after the use of a valsalva manoeuvre and adenosine atrial flutter should be considered as a diagnosis. Then beta-blockers and digoxin could be used.

Question:

A 3-year-old boy with a history of atopic dermatitis presents to the general practice with his mother with a mild fever, malaise and rapidly worsening painful eczema of 3 days duration on the face, dorsum of the right hand and right forearm. He also developed itchy monomorphic dome-shaped vesicles that quickly became eroded and crusted over those areas mentioned. There were also enlarged cervical nodes on physical examination. The child’s temperature was 37.7°C, heart rate 88/min (range: 80 to 120 beats per minute), and respiratory rate 22/min (range: 20 to 28 breaths per minute).

What is the most likely underlying cause for this patient's rash?

A.Cellulitis

B.Chickenpox

C.Eczema herpeticum

D.Henoch schonlein purpura

E.Impetigo

Answer:Eczema herpeticum

Explanation:

An area of rapidly worsening painful eczema is an early sign of eczema herperticum

Important for meLess important

Eczema herpeticum is the most likely cause as it presents as a rapidly progressing painful rash that is commonly seen in children with atopic eczema as in this case. On examination, monomorphic punched-out erosions (circular, depressed, ulcerated) usually 1-3mm in diameter are typically seen.

Cellulitis is less likely as it presents more as a localized area of red, painful, swollen skin and more severe systemic symptoms such as fever, chills and rigours if there is bacteraemia.

Eczema herpeticum also tends to be confused with chickenpox which is also less likely. Chickenpox presents with a fever initially and an itchy rash that starts on the head/trunk before spreading. The rash is initially macular then popular and then forms clear fluid-filled vesicles and the systemic upset is usually mild. However, in this case, the boy had a rapid progression of the rash from vesicles to monomorphic punched out lesions, had moderate systemic involvement and complained of pain which is less commonly present in primary varicella infection.

Henoch-Schonlein purpura (HSP) is least likely as it presents as a palpable purpuric rash over buttocks and extensor surfaces of arms and legs, with abdominal pain, polyarthritis and features of IgA nephropathy may occur such as haematuria or renal failure. HSP is an IgA mediated small vessel vasculitis.

Impetigo is less likely as even though it can present as a complication of eczema, it presents more commonly as a red papule or macule that quickly becomes a vesicle and an erosion and heals as ‘golden’ crusted skin lesions which are typically found around the mouth. They cause a mild itch and pain. As it is a highly contagious superficial skin infection, it is less likely to cause systemic symptoms such as fever and malaise which this child had.

Question:

A 25-year-old female currently under investigation for secondary amenorrhoea presents with jaundiced sclera. On examination spider naevi are present along with tender hepatomegaly. Blood tests show:

Hb 11.6 g/dl

Plt 145 \* 109/l

WCC 6.4 \* 109/l

Albumin 33 g/l

Bilirubin 78 µmol/l

ALT 245 iu/l

What is the most likely diagnosis?

A.Haemochromatosis

B.Wilson's disease

C.Primary biliary cirrhosis

D.Autoimmune hepatitis

E.Primary sclerosing cholangitis

Answer:Autoimmune hepatitis

Explanation:

The combination of deranged LFTs combined with secondary amenorrhoea in a young female strongly suggest autoimmune hepatitis

Question:

A 35-year-old man presented to rheumatology with progressively worse pain in his joints, mainly his hands and feet. The rheumatologist orders an x-ray of his hands and feet, and among the reported abnormalities a 'plantar spur' and 'pencil and cup' deformity are noted.

Which of the following do these x-ray findings indicate?

A.Ankylosing spondylitis

B.Osteoarthritis

C.Psoriatic arthritis

D.Reactive arthritis

E.Rheumatoid arthritis

Answer:Psoriatic arthritis

Explanation:

'Plantar spur' and 'pencil and cup' deformity are typical x-ray features in psoriatic arthritis

Important for meLess important

Psoriatic arthritis will have the typical x-ray features described- 'plantar spur' and 'pencil and cup'.

Osteoarthritis presents with x-ray changes 'LOSS'- Loss of joint space, Osteophytes, Subchondral sclerosis, Subchondral cysts.

Rheumatoid presents with 'LESS'- Loss of joint space, Erosions, Soft bones, Soft tissue swelling.

Ankylosing spondylitis will present with sacroiliitis.

Question:

A 64-year-old male is seen in rheumatology outpatient clinic for follow up of his ankylosing spondylitis. He has a further past medical history of hypertension and gout.

He complains of feeling increasingly breathless on exertion and is referred for spirometry by his consultant.

Which combination of results are most likely to be seen on his pulmonary function tests?

A.FEV1 = 44% (of predicted); FVC = 72% (of predicted); FEV1:FVC ratio = 61% (of predicted)

B.FEV1 = 92% (of predicted); FVC = 96% (of predicted); FEV1:FVC ratio = 96% (of predicted)

C.FEV1 = 32% (of predicted); FVC = 61% (of predicted); FEV1:FVC ratio = 52% (of predicted)

D.FEV1 = 56% (of predicted); FVC = 60% (of predicted); FEV1:FVC ratio = 93% (of predicted)

E.FEV1 = 29% (of predicted); FVC = 72% (of predicted); FEV1:FVC ratio = 40% (of predicted)

Answer:FEV1 = 56% (of predicted); FVC = 60% (of predicted); FEV1:FVC ratio = 93% (of predicted)

Explanation:

Kyphoscoliosis (e.g. ankylosing spondylitis) can cause a restrictive lung defect on spirometry

Important for meLess important

Ankylosing spondylitis causes a restrictive defect on pulmonary function testing - FEV1 and FVC values are both reduced, but FEV1:FVC ratio remains normal or is increased - option D (correct answer). This occurs due to a combination of apical lung fibrosis and thoracic kyphosis, with subsequent reduced chest wall expansion.

Options A, C and E indicate an obstructive defect.

Option B indicates normal spirometry results.

Question:

A 67-year-old woman attends the emergency department complaining of a disturbance to her vision. She explains that her symptoms developed suddenly around 20 minutes ago, and adds that she struggles to identify objects on her right side.

Her past medical history is significant for diabetes mellitus type 2 and hypertension.

On examination, the doctor notes right-sided homonymous hemianopia with macular sparing. The patient's speech is unaffected and she has 5/5 power in all limbs.

Where could a lesion occur that is the most likely cause of this patient's symptoms?

A.Anterior cerebral artery

B.Basilar artery

C.Middle cerebral artery

D.Ophthalmic artery

E.Posterior cerebral artery

Answer:Posterior cerebral artery

Explanation:

Contralateral homonymous hemianopia with macular sparing and visual agnosia - posterior cerebral artery

Important for meLess important

This patient is presenting with a stroke located in the posterior cerebral artery. The posterior cerebral artery supplies the occipital cortex, which is situated posteriorly to the optic tract and so lesions to this structure cause contralateral homonymous hemianopia. Some central vision may still remain due to a phenomenon caused by macular sparing, although the exact mechanism behind this is unclear.

A stroke affecting the anterior cerebral artery typically presents with contralateral hemiparesis with the lower limbs affected more than the upper limbs. As this patient has 5/5 power across all her limbs, this suggests that this is not the correct answer.

The basilar artery forms part of the blood supply for the brain stem. Strokes affecting this artery are associated with very poor clinical outcomes, including locked-in syndrome and death. The patient's symptoms in this scenario are less severe than would be expected for a stroke affecting the basilar artery, and instead are consistent with a posterior cerebral artery stroke.

A stroke affecting the middle cerebral artery usually presents with contralateral hemiparesis affecting the upper limbs more than the lower limbs. The patient may additionally have some speech disturbance. As the patient in this question does not have these symptoms, this is not the correct answer.

Pathology affecting the ophthalmic artery is typically associated with loss of vision at the affected eye only. Patients may report transient visual field loss, called amaurosis fugax. A lesion here would not cause symptoms affecting the visual fields of both eyes. As this patient has hemianopia affecting both eyes, it is not the correct answer.

Question:

A 20-year-old man presents with nausea and vomiting, headache, muscle cramps and anorexia. His past medical history is notable for schizophrenia however this is well controlled in the community with risperidone. Clinical examination is unremarkable and the patient does not appear dehydrated. On examination the heart rate was 84 beats per minute, respiratory rate 16 /minute, temperature: 37.1 ºC and blood pressure 138/91 mmHg. Initial tests are ordered in the emergency department as follows:

Hb 131 g/l

WBC 6 \* 109/l

Na+ 120 mmol/l

K+ 3.9 mmol/l

Urea 3.1 mmol/l

Creatinine 82 µmol/l

Chlorine 93 mmol/l

CRP <5 mg/l

capillary blood glucose 3.5 mmol/l

Which additional test is likely to point to the diagnoses?

Urinary protein

4%

Urine osmolality

68%

Liver function tests

6%

Short synacthen

19%

Renal ultrasound

2%

The observations and blood results make an infective cause of the man's symptoms unlikely. Another diagnoses to be thinking of in this presentation might be diabetic ketoacidosis but he is not noted to be diabetic, is not dehydrated and the blood sugar is on the low side of normal (because the patient is not currently eating much). The electrolytes show a low sodium in the context of a patient who is not dehydrated and does not have oedema. The next important assessment would be the osmolality of the urine. If this was > 100 mmol/kg, this would suggest the syndrome of inappropriate ADH secretion (SIADH). A clue for the cause is given in the question, the patient is a schizophrenic taking risperidone. Although this is a rare cause of SIADH compared to selective serotonin re-uptake inhibitors (SSRIs) or tricyclic antidepressants (TCAs), it is listed in the BNF as a recognised side effect. The management would involve a psychiatry referral in order to trial an alternative drug with close monitoring.

LFTs, urinary protein or a renal ultrasound scan might have been appropriate if the patient had oedema to rule out renal failure or liver failure. A short synacthen test might have been indicated at a later stage in an Addisonian patient but this is unlikely here given the normal serum K+ and the normotensive, non-dehydrated clinical state.

Question:

Margaret is a 60-year-old woman who enjoys taking her grandson on long walks in the countryside and regularly tends to her garden. Last night she tripped over her cat and sustained an undisplaced intracapsular neck of femur fracture.

What is the most appropriate management for Margaret's hip fracture?

A.Conservative management

B.Hemiarthroplasty

C.Total hip replacement

D.Internal fixation (cannulated hip screw)

E.Intra-medullary nail

Answer:Internal fixation (cannulated hip screw)

Explanation:

Internal fixation is the method of choice for patients with good pre-morbid status with an intracapsular NOF fracture

Important for meLess important

The stem communicates that the patient has a good pre-morbid functional ability, this is important in making any management decisions.

As the fracture is intracapsular, conservative management is not appropriate owing to the risk of avascular necrosis. In the overwhelming majority of patients, some sort of surgical management is indicated.

Hemiarthroplasty is reserved for patients with poor pre-morbid functioning.

Total hip replacements are used for displaced intracapsular fractures.

Internal fixation, commonly with a cannulated hip screw, is the method of choice for patients with a good pre-morbid status.

Intramedullary devices are used to fix extracapsular fractures.

Question:

A 29-year-old man is referred to the colorectal surgeons with recurrent episodes of bright red rectal bleeding that have been occurring for the past 4 months. On examination, there is a muco-epithelial defect in the posterior midline of the anus. A full digital rectal exam (DRE) could not be completed due to pain. He has tried bulk-forming laxatives, lubricants, and topical glyceryl trinitrate (GTN) with little benefit.

Given the likely diagnosis, what is the next management step?

A.High-fibre diet

B.Incision and drainage

C.Rubber band ligation

D.Seton insertion

E.Sphincterotomy

Answer:Sphincterotomy

Explanation:

Anal fissures - sphincterotomy may be considered for cases that do not respond to conservative management

Important for meLess important

The correct answer is 'sphincterotomy'.

The most likely diagnosis in this patient is an anal fissure. It has not responded to conservative measures including laxatives, lubricants, and topical GTN. As such, the next step in management would be consideration for a sphincterotomy.

While a high-fibre diet is important in the management of anal fissures it should be initiated as part of other conservative measures. As other conservative methods have not helped this patient's symptoms they need consideration for more definitive management.

Incision and drainage would be the correct answer if the patient was suffering from a perianal abscess. This would present with anal pain and pus-like discharge.

Rubber band ligation would be the management for haemorrhoids. Haemorrhoids would present with painless rectal bleeding and pruritus.

Seton insertion would be the management for anal fistulae. Anal fistulae would present with an external opening on the perineum and discharge onto the perineum.

Question:

You are called to see a 40-year-old patient in the emergency department. The patient was found by a member of the public unconscious in the street and was brought in by paramedics. The patient is unable to provide a history, and no collateral history is available.

A head CT is ordered to investigate the cause of his loss of consciousness which you review. This is what you see::

© Image used on license from Radiopaedia

What is the most likely mechanism of injury causing this CT scan finding?

A.Fracture of the occipital condyle

B.Fracture of the pterion

C.Rupture of a brain aneurysm

D.Rupture of cortical bridging veins

E.Rupture of the posterior meningeal artery

Answer:Fracture of the pterion

Explanation:

The CT scan shows an extradural haematoma. This forms a convex-shaped cerebral haemorrhage as the bleeding is confined by cranial sutures. Extradural haemorrhages are commonly caused by a fracture of the pterion, where the temporal, frontal, parietal, and sphenoid bones join. This is because the middle meningeal artery is located here and may rupture, causing an extradural haemorrhage.

An occipital condylar fracture is caused by high-energy blunt trauma and is associated with spinal haemorrhage. The fracture itself may be visible on CT scan.

A ruptured brain aneurysm would commonly cause a subarachnoid haemorrhage. The CT may be normal in this instance, or you may see blood in the subarachnoid space (usually CSF filled).

Rupture of bridging veins would cause a subdural haemorrhage. This would appear as a concave or crescent shape as the blood is not limited to suture lines.

Rupture of the posterior meningeal artery may cause an intraventricular haemorrhage rather than an extradural. Blood in the ventricles may be seen.

Question:

An 82-year-old man presents to his GP surgery with shortness-of-breath. He has a history of type 2 diabetes mellitus (tablet controlled) and colon cancer for which he had a right hemicolectomy seven years ago. He started to feel breathless around two weeks ago and only has an occasional non-productive cough. There is no chest pain. On examination his chest is clear, blood pressure is 156/88 mmHg, respiratory rate is 18/min and pulse 96/min. An ECG is taken whilst he is at surgery:

© Image used on license from Dr Smith, University of Minnesota

What diagnosis does the ECG suggest?

A.Left bundle branch block

B.Pericarditis

C.Myocardial infarction

D.Pulmonary embolism

E.Left ventricular hypertrophy

Answer:Myocardial infarction

Explanation:

This patient has massive ST elevation with associated hyperacute T waves in the anterior leads suggestive of an ongoing myocardial infarction (MI). Both the patients age and diabetes puts them at risk of a silent MI. This patient obviously requires aspirin 300mg stat (provided there are no contraindications) and immediate transfer to hospital.

Question:

A 45-year-old gentleman presents to the urgent care centre with a two-day history of abdominal cramps and increasingly loose bowel motions. He has had three bowel motions in the last 24 hours and has noticed streaks of blood mixed in with the stool. He also complains of reduced appetite and nausea. There is no temperature symptom. His past medical history includes gastro-oesophageal reflux disease and ulcerative colitis. He takes lansoprazole 15mg once a day. He is a smoker and drinks 14 units a week.

On examination, his temperature is 37.1ºC. His heart rate is 88/min with a blood pressure of 134/86mmHg. Abdominal examination shows mild discomfort in the left iliac fossa with no guarding or rebound tenderness.

Which of the following is the most appropriate first step management?

A.Oral mesalazine

B.Rectal mesalazine

C.Steroid enema

D.Oral steroid

E.Oral loperamide

Answer:Rectal mesalazine

Explanation:

In a mild-moderate flare of distal ulcerative colitis, the first-line treatment is topical (rectal) aminosalicylates

Important for meLess important

The correct answer is rectal mesalazine. NICE recommends topical (rectal) mesalazine or sulphasalazine in mild-to-moderate exacerbation of left-sided ulcerative colitis.

Oral aminosalicylates are indicated if evidence of extensive disease or if remission is not achieved within four weeks using topical treatment. Hence, oral mesalazine is the wrong answer.

Oral or rectal steroid may be used for induction of remission if aminosalicylates are ineffective or not tolerated. There are no features in the history to suggest this. Hence, oral and steroid enema are incorrect.

Oral loperamide is not recommended unless advised by a specialist) as they do not usually reduce stool frequency and can increase the risk of toxic megacolon. Hence, oral loperamide is the wrong answer.

Question:

A 70-year-old gentleman a past medical history of ischemic heart disease and hypertension, presents with progressive facial and upper limb swelling. Visibly distended veins can be observed on his chest and neck. This has been ongoing for the past three weeks and he also complains of increased breathlessness, particularly on exertion. He is an ex-smoker and drinks 13 units of alcohol per week.

What is the most likely cause of this presentation?

A.Right sided heart failure

B.Lung cancer

C.Lymphoma

D.Sarcoidosis

E.Aortic arch aneurysm

Answer:Lung cancer

Explanation:

Lung cancer can present as superior vena cava syndrome

Important for meLess important

This is a clinical picture of superior vena cava obstruction which can be caused by an intraluminal mass or extrinsic compression. Lung cancer is the most common cause of SVC obstruction due to extrinsic compression. Lymphoma, sarcoidosis and aortic aneurysms are potential causes of superior vena cava obstruction but occur less frequently. Right heart failure may present with progressive dyspnoea and peripheral oedema in a patient with a history of heart disease but would not cause SVC obstruction.

Question:

A 1-year-old child is being assessed in the neurologist's office. He has been referred by his general practitioner as he is showing delayed motor developmental milestones.

When he tries to move around or walk, slow, twisting and repetitive movements of the arms can be noticed, accompanied by rapid involuntary and jerky movements of the legs. Additionally, the parents have noticed oro-motor problems.

There is no significant family history of neurological conditions and the other two siblings are healthy.

Given the most likely diagnosis, which zone is the lesion most likely found in?

A.Amygdala

B.Basal ganglia and the substantia nigra

C.Frontal lobe

D.Medial thalamus and mammillary bodies of the hypothalamus

E.Occipital lobe lesions

Answer:Basal ganglia and the substantia nigra

Explanation:

Dyskinetic cerebral palsy results from damage to the basal ganglia and the substantia nigra

Important for meLess important

The correct answer is basal ganglia and the substantia nigra. This child is presenting with the characteristic features of dyskinetic cerebral palsy, the second most common subtype of cerebral palsy.

Classical symptoms include athetoid movements and oro-motor problems. Athetoid problems are defined as slow, involuntary, and writhing movements of the limbs, face, neck, tongue, and other muscle groups, sometimes accompanied by dystonia and choreoathetosis. It is usually caused by cerebral malformations during development and congenital infections, which specifically damage the basal ganglia and the substantia nigra, zones which control movement.

Lesions to the amygdala produce a very specific pattern called Kluver-Bucy syndrome, which is characterised by hypersexuality, hyperorality, hyperphagia and visual agnosia, which are all absent in this case.

Frontal lobe lesions cause a different range of signs and symptoms depending on the specific zone which is lesioned. They can cause expressive aphasia, disinhibition, perseveration, anosmia and inability to generate a list, which are all absent in this case.

The medial thalamus and mammillary bodies of the hypothalamus cause Wernicke and Korsakoff syndrome if damaged. These are characteristic of alcoholics and severe nutritional deficiencies, making this option incorrect. It would present with, nystagmus, ophthalmoplegia and ataxia, later on, accompanied by amnesia.

Occipital lobe lesions cause visual problems such as homonymous hemianopia, cortical blindness and visual agnosia which are not present in this case.

Question:

A 76-year-old man is brought to the emergency department after being found lying on the floor of his kitchen. He is confused and drowsy, which the family report is new, lethargic and complains of pain/tenderness in his right thigh. On examination, he appears clinically dehydrated with extensive bruising on his right side but no sign of head injury. A pericardial rub could be heard on auscultation of his chest. He has a low volume of very dark urine which is positive for myoglobin. Initial blood results revealed:

Measure Result

serum creatinine 850 µmol/l

Which of the following would be indications for dialysis in this patient?

A.Oliguria

B.Serum creatinine >800 µmol/l.

C.Hypovolemia

D.Encephalopathy

E.Myoglobinuria

Answer:Encephalopathy

Explanation:

Uraemia (encephalopathy or pericarditis) is an indication for dialysis

Important for meLess important

This patient has evidence of renal injury from markedly elevated serum creatinine. The presence of new onset confusion/drowsiness and a pericardial rub should alert you to possible uraemic encephalopathy and pericarditis, which are indications for dialysis in renal impairment. The rest of the clinical features are not indications for dialysis on their own.

Question:

A 31-year-old woman presents to the GP with a two-month history of pain and stiffness in her hands. This is worst in the morning and improves with movement of the affected joints. She has not noticed any skin changes but does suffer from dandruff. While examining the patient, the GP notices the following appearance of the nails.

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Which of the following complications is this patient at higher risk of?

A.Cardiovascular disease

B.Lung cancer

C.Neutropenia and splenomegaly

D.Pericarditis

E.Mononeuritis multiplex

Answer:Cardiovascular disease

Explanation:

The image shows nails with pitting and onycholysis, both heavily associated with psoriasis and psoriatic arthritis. Patients with psoriatic arthritis may present without obvious skin changes and some patients may have scalp psoriasis that initially presents similarly to dandruff. As psoriatic arthritis is the most likely diagnosis, cardiovascular disease is the only complication listed that this patient is at greater risk of.

Psoriasis is thought to increase the risk of cardiovascular disease through multiple proposed mechanisms. Patients suffering from psoriasis are more likely to have other cardiovascular risk factors such as smoking and obesity compared to control groups, and so this may be the reason. Psoriasis is also an inflammatory condition, and the T cells implicated in the pathogenesis of psoriasis also implicated in the pathogenesis of atherosclerosis, which may show psoriasis to be an independent risk factor.

Patients with psoriasis and psoriatic arthritis are not at greater risk of lung cancer but are at a higher risk of lymphoma and non-melanoma skin cancer. Evidence is mixed on how significant the risk is increased by the disease itself compared to the immunosuppressive treatments that may be used, but patients are at a greater risk compared to the general population.

Neutropenia and splenomegaly are not seen in psoriatic arthritis but can be seen as a complication of rheumatoid arthritis. RA, neutropenia and splenomegaly as a triad is termed Felty syndrome.

Pericarditis is seen as a complication in systemic lupus erythematosus (SLE) but is not associated with psoriasis or psoriatic arthritis. Other forms of serositis can occur in SLE, including pleuritis and rarely peritonitis.

Psoriasis and psoriatic arthritis are not associated with mononeuritis multiplex, which is most commonly associated with inflammatory vasculitides such as granulomatosis with polyangiitis. These conditions are unlikely to cause the nail changes seen.

Question:

A 21-year-old male presented to the emergency department with severe pain and swelling of both hands and feet. There is no history of trauma, fever or any allergic conditions. He has a recent lower respiratory tract infection for which he was started on an antibiotic by his GP.

He has a background of sickle cell anaemia (HbSS), however, this is the first episode of such severe pain.

Observations are as follows: blood pressure 110/70 mmHg, pulse 100/min, respiratory rate 15/min, temperature 37.2ºC, oxygen saturation 94% on air. On examination, there is oedema of his fingers, tenderness on palpation of both hands and feet. You administer supportive treatment including hydration, strong analgesia and supplemental oxygen. On reassessing after 2 hours, he reports that the pain has moderately improved.

Blood test results have shown:

Hb 90 g/L (135-180)

Platelets 350 \* 109/L (150 - 400)

WBC 14 \* 109/L (4.0 - 11.0)

Na+ 137 mmol/L (135 - 145)

K+ 3.7 mmol/L (3.5 - 5.0)

Urea 5 mmol/L (2.0 - 7.0)

Creatinine 70 µmol/L (55 - 120)

Bilirubin 15 µmol/L (3 - 17)

ALP 90 u/L (30 - 100)

ALT 37 u/L (3 - 40)

Albumin 45 g/L (35 - 50)

Creatine kinase 110 u/L (35-250)

CRP 18 mg/L (< 5)

What is the most appropriate next step in his management?

A.Doppler ultrasound on both limbs

B.Continue supportive treatment

C.MRI hands and feet

D.X-ray hands and feet

E.Start hydroxyurea

Answer:Continue supportive treatment

Explanation:

In sickle-cell, acute painful vaso-occlusive crises should be diagnosed clinically

Important for meLess important

The patient has dactylitis due to painful vaso-occlusive crisis which was precipitated by the respiratory tract infection. The diagnosis is based on clinical suspicion and no need for further investigations, although blood tests are commonly done as part of the clinical work-up. Pain can begin from any part of the body but frequently affects the extremities and back and chest areas.

Patients with sickle cell disease are also prone to other osteoarticular complications such as septic arthritis and osteomyelitis which would be associated with other features such as fever and markedly raised inflammatory markers. Thus no need for imaging by MRI or X-ray in this case.

Although thromboembolic complications are common in sickle cell disease there is nothing to support this in this case, so there is no need for the ultrasound doppler scanning.

Hydroxyurea can be used in sickle cell disease to prevent a further crisis if he has repeated attacks.

Question:

A 42-year-old female is seen in the clinic for review of her long-standing skin condition (see below). The patient reports she often picks and scratches at the skin lesions, causing to them to bleed, fall off and show the underlying red skin.

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The patient has an extensive history of autoimmune conditions including systemic lupus erythematosus and coeliac disease. Her conditions frequently flare despite treatment.

What is the patient’s most likely diagnosis?

A.Dermatitis herpetiformis

B.Discoid lupus erythematosus

C.Erythema nodosum

D.Pityriasis alba

E.Plaque psoriasis

Answer:Plaque psoriasis

Explanation:

Plaque psoriasis is associated with erythematous plaques covered in a silvery-white scale that, when removed, exposes an underlying red membrane that can bleed known as Auspitz's sign. In addition, this patient has a history of autoimmune diseases, which increases the chance of her developing another autoimmune disease. Plaque psoriasis is the most common type of psoriasis and typically affects the extensor surfaces such as the elbows and knees, but also commonly occurs on the scalp, shins, and trunk.

Dermatitis herpetiformis is a cutaneous manifestation of coeliac disease characterised by an intensely itchy, papulovesicular rash, with blisters filled with watery fluid. The rash is similar in appearance to a herpes rash (hence the name) and is not associated with the plaque-like skin lesions seen with this patient.

Discoid lupus erythematosus is a common type of chronic cutaneous lupus and presents as painful red, inflamed coin-shaped patches which progress to leave scarring. These patches are commonly seen on sun-exposed areas such as the scalp, cheeks and ears and rarely affect the lower limbs.

Erythema nodosum (EN) does normally affect the shins bilaterally however the condition is due to inflammation of the adipose cells and therefore results in tender red nodules, not the plaque-like lesions seen with this patient. EN is associated with several conditions including inflammatory bowel disease (ulcerative colitis and Crohn’s), sarcoidosis and certain malignancies (e.g. leukaemia and lymphoma).

Pityriasis alba is a type of low-grade eczema that mainly affects children. It consists of characteristic white lesions with a fine-scale, that commonly occur on the face, neck and upper arms, which subside to leave a hypopigmented area.

Question:

A 28-year-old woman 27 weeks into her first pregnancy presents with vaginal bleeding. Which one of the following features would point towards a diagnosis of placenta praevia rather than placenta abruption?

A.Tender, tense uterus

B.Normal lie and presentation

C.No pain

D.Distressed fetal heart

E.Shock out of keeping with visible blood loss

Answer:No pain

Explanation:

Question:

You notice an abnormality on the neck of a 40-year-old woman:

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Which one of the following is most associated with this appearance?

A.Lung cancer

B.Acute pancreatitis

C.Haemochromatosis

D.Polycystic ovarian syndrome

E.Digoxin use

Answer:Polycystic ovarian syndrome

Explanation:

This patient has acanthosis nigricans which is associated with a number of hyperinsulinaemia states such as polycystic ovarian syndrome.

Whilst acanthosis nigricans can be associated with any type of cancer by far the most common malignant cause is gastrointestinal adenocarcinoma.

Question:

A 68-year-old woman presents to the emergency department with right-sided hip pain and joint instability. She tells you that the pain radiates to the knee and is worse on weight-bearing, however it has not prevented her from walking or weight bearing. She had a total hip replacement 18 months ago due to an intracapsular neck of femur fracture.

What is the most likely diagnosis?

A.Aseptic loosening of the hip replacement

B.Avascular necrosis of the femur

C.Iliotibial band syndrome

D.Infection of the joint replacement

E.Periprosthetic fracture

Answer:Aseptic loosening of the hip replacement

Explanation:

Aseptic loosening is the most common reason total hip replacements need to be revised

Important for meLess important

Aseptic loosening is the most common reason for total hip replacement revision. This often presents with pain in the hip or groin region radiating down to the knee.

Avascular necrosis of the femoral head is a complication of the initial fracture. As this patient has had a total hip replacement there is no femoral head remaining and so this would not be possible.

Iliotibial band (IT band) syndrome presents in younger patients, particularly those who do long-distance running. It can present in a similar way, with pain and a tight sensation that runs down the course of the IT band from the gluteal fascia to the lateral fibula. This is unlikely in this patient due to their previous surgery and the absence of any mention of strenuous, regular physical activity in her history.

Infection of the replacement is an acute complication of surgery. This would be very unlikely to present 18 months after the surgery.

A periprosthetic fracture would mean that the patient would not be able to weight bear, and there would be a reduced range of movement. The fact that the patient can weight bear means that this is unlikely.

Question:

A 62-year-old woman is in hospital with cholecystitis. Whilst on the ward she is noted to have persistently raised blood glucose levels.

Her blood tests show:

HbA1c 68 mmol/mol

You decide to start her on metformin 500mg immediate release.

What is the most appropriate interval to leave before increasing the dose?

A.1 day

B.1 month

C.1 week

D.15 days

E.3 months

Answer:1 week

Explanation:

Metformin should be titrated slowly, leave at least 1 week before increasing dose

Important for meLess important

The correct answer is 1 week. When using metformin immediate-release medication the BNF advises that the dose is initially 500 mg once daily for at least 1 week, and then increased 500 mg twice daily for at least 1 week. This is because a common side effect of metformin is diarrhoea and this can be worse if it is increased too soon.

Increasing the medication within 1 day is too soon and likely to cause increased side effects. Common side effects of metformin include abdominal pain; appetite decreased; diarrhoea, nausea, and altered taste.

Waiting for months before increasing the dose is a long time and this is not the correct answer.

If using modified-release preparations then the BNF advises that the dose increased gradually, every 10–15 days. In this scenario, the medication is in the immediate release form and so 1 week is a more appropriate answer.

Question:

A 56-year-old man sees his GP with acute onset severe pain and swelling in his right knee.

The GP aspirates the joint and sends the fluid for microscopy which shows negatively birefringent needle-shaped crystals.

He is prescribed a course of naproxen for the pain which improves over the next week or so and he returns for review.

When should prophylactic medication for this condition be offered?

A.After 3 attacks in a 12 month period

B.After a second attack

C.After the first attack

D.If first line treatment has failed to control symptoms

E.If his urate level is high

Answer:After the first attack

Explanation:

Offer allopurinol to all patients after their first attack of gout

Important for meLess important

This patient has gout as shown on his joint aspirate with the classic description of negatively birefringent needle-shaped crystals.

The first line treatment is to control the symptoms with either NSAIDs, colchicine or oral steroids.

After the first attack is the correct answer. It is now recommended that urate-lowering therapy - typically allopurinol - should be offered to the patient after the first attack.

It is therefore unnecessary to wait until after a second attack or after 3 attacks in a 12 month period, so these are both incorrect.

If first line treatment has failed to control symptoms then an alternative acute treatment should be trialled or these can be used in combination. Joint aspiration and injection or an IM steroid could also be considered. Regardless of these treatments, a urate-lowering prophylactic medication should be offered so this option is incorrect.

Whilst measuring urate levels and monitoring these during treatment is helpful and can guide dose titration, treatment is not dependent on whether his urate level is high, so this is also not correct.

Question:

A 51-year-old male presents with chest pain, eighteen days after he was diagnosed with a non-ST elevation myocardial infarction. It is severe, central chest pain with radiations to the left shoulder and worse with deep inspiration. The pain woke him from sleep at 03:00 and has improved slightly after getting up out of bed. Findings on examination include reduced air entry to both bases coupled with fine basal crepitations. Observations show:

Heart rate 105bpm

Blood pressure 130/78mmHg

Respiratory rate 22bpm

Temperature 37.8 celsius

Oxygen saturations 97%

An initial ECG shows diffuse saddle-shaped ST elevation. An echocardiogram shows a small rim of fluid outside the pericardium. What is the most likely diagnosis?

A.Second myocardial infarction

B.Pulmonary embolism

C.Dressler's syndrome

D.Costochondritis

E.Unstable angina

Answer:Dressler's syndrome

Explanation:

The correct answer is Dressler's syndrome given the recent history of MI, description of pain (pleuritic, left shoulder radiation, worse lying down), low-grade temperature, ECG changes and pericardial effusion.

It is treated with NSAIDs preferably or a prolonged course of colchicine or steroids.

Question:

A 24-year-old man arrives at the emergency department with a suspected opioid overdose. He is treated and regains consciousness rapidly. The patient has been admitted to the emergency department multiple times over the past couple few months for the same reason. The patient is offered treatment for their addiction and they are admitted to an inpatient ward.

What medication is the best option for this patient?

A.Acamprosate

B.Chlordiazepoxide

C.Methadone

D.Naloxone

E.Varenicline

Answer:Methadone

Explanation:

Methadone or buprenorphine should be used as the first-line treatment in opioid detoxification

Important for meLess important

Methadone is the correct answer. Methadone is a synthetic opioid agonist that eliminates opioid withdrawal symptoms. Another medication that could be used is buprenorphine which is a partial opioid agonist. Either drug can be used first-line in patients undergoing detoxification for opioid dependence.

Acamprosate is incorrect. This is used to maintain abstinence in patients with alcohol dependence. It acts as a weak antagonist of NMDA receptors.

Chlordiazepoxide is incorrect. These are long-acting benzodiazepines used in the acute management of patients undergoing alcohol withdrawal.

Naloxone is incorrect. This is used in the emergency management of opioid overdose, and it has been given to the patient upon his arrival at the emergency department.

Varenicline is incorrect. This is a useful medication that can be useful in those that aim to stop smoking, so would be unsuitable in this case.

Question:

You are asked to review a 79-year-old man who reports new onset yellow tinting of his vision. He reports he is on numerous medications but cannot remember their names. His past medical history is significant for heart failure, benign prostatic hyperplasia and COPD. Which of the following medications is most likely responsible for this side effect?

A.Furosemide

B.Ramipril

C.Digoxin

D.Sildenafil

E.Salbutamol

Answer:Digoxin

Explanation:

Digoxin may cause yellow-green vision

Important for meLess important

Due to its narrow therapeutic range, digoxin has a high risk of causing toxicity in patients. A characteristic feature of toxicity is xanthopsia or yellow-tinted vision.

Sildenafil can cause blue-tinted vision or cyanopsia.

Question:

You are asked to review a 73-year-old woman in the surgical ward complaining of shortness of breath and unilateral swelling in her leg. On examination, she has a heart rate of 101 beats per minute and there are normal breath sounds on auscultation. She underwent a total hip replacement 7 days ago, which went well, with no complications, and following the procedure, a 10-day course of unfractionated heparin was prescribed.

Her blood tests show the following:

Hb 140 g/L Male: (135-180) Female: (115 - 160)

Platelets 120 \* 109/L (150 - 400)

WBC 7.4 \* 109/L (4.0 - 11.0)

An ELISA test is ordered and it is positive for platelet factor 4.

Given the information above, what is the most likely cause of the patient's symptoms?

A.Antiphospholipid syndrome

B.Disseminated intravascular coagulation

C.Factor V Leiden

D.Heparin-induced thrombocytopenia

E.Thrombotic thrombocytopenic purpura

Answer:Heparin-induced thrombocytopenia

Explanation:

Heparin induced thrombocytopenia is a prothrombotic state

Important for meLess important

Heparin-induced thrombocytopenia (HIT) is the correct answer. Most patients receiving unfractionated heparin experience a small and immediate drop in their platelet count which is normally harmless. A smaller percentage of patients however receiving unfractionated heparin will develop a more serious immune-mediated thrombocytopenia which is the result of the development of antibodies against heparin-platelet factor 4 complexes (PF4), positive in this patient.

This usually presents as a systemic reaction, but being a prothrombotic state, it can actually present as a deep venous thrombosis or pulmonary embolism. In this case, the patient has symptoms of pulmonary embolism such as tachycardia which is an important sign of a possible high-risk PE, unilateral leg swelling and shortness of breath. Additionally, the administration of unfractionated heparin rather than low-molecular-weight heparin is a risk factor for the development of heparin-induced thrombocytopenia.

Antiphospholipid syndrome is characterised by recurrent miscarriages, venous/arterial thrombosis, and thrombocytopenia. In this case, the lack of one of the cardinal symptoms, the miscarriages, and of previous medical history make this diagnosis unlikely.

Disseminated intravascular coagulation is incorrect. It has a much more acute onset, usually following major systemic insults. In our patient, we saw symptoms developing around 7 days after treatment. Additionally, it is also characterised by microangiopathic hemolytic anaemia, and this patient's haemoglobin is normal.

Factor V Leiden (activated protein C resistance) is the most common inherited thrombophilia. It is a sensible differential, but the administration of unfractionated heparin rather than low-molecular-weight heparin is a risk factor for heparin-induced thrombocytopenia. Additionally, a positive platelet factor 4 is a strong indicator of heparin-induced thrombocytopenia.

Thrombotic thrombocytopenic purpura will cause microangiopathic hemolytic anaemia, leading to an extremely acute picture. The haemoglobin count is normal in our patient, making this diagnosis unlikely. Additionally, here the thrombocytopenia is mild, whilst it is quite marked in thrombotic thrombocytopenic purpura.

Question:

A 25-year-old man presents to his GP with a 3-day history of watery diarrhoea. He describes 3-4 loose bowel motions a day. Last week, the patient had taken intramuscular ceftriaxone for gonorrhoea. His temperature is 36.6ºC, respiratory rate of 15/min, heart rate of 88/min, blood pressure of 132/88 mmHg, oxygen saturation 98% on room air. Investigations revealed the following:

Platelets 300 \* 109/L (150 - 400)

WBC 13 \* 109/L (4.0 - 11.0)

Na+ 141 mmol/L (135 - 145)

K+ 3.9 mmol/L (3.5 - 5.0)

C. difficile toxin positive

Given the most likely diagnosis, what factor from the information above indicates a moderate rather than mild infection?

A.Blood pressure reading

B.Duration of symptoms

C.Number of loose bowel motions a day

D.Potassium level

E.Raised white cell count

Answer:Raised white cell count

Explanation:

The white cell count is key in determining the severity of C. difficile infection

Important for meLess important

Raised white cell count is the correct answer. This patient is suffering from a C. difficile infection given his symptoms and positive C. difficile toxin. A raised WBC count (but less than 15 \* 109 per litre) is indicative of a moderate C. difficile infection. If the WBC count is greater than 15 \* 109 per litre, it is indicative of a severe infection. The WBC count is the key to determining the severity of infection.

Blood pressure reading is incorrect. The patient's blood pressure of 132/88 mmHg is not outside the expected range for the individual.

Number of loose bowel motions a day is incorrect. The number of loose bowel motions a day is a less reliable indicator of disease severity compared to the WBC count and is therefore not used as a distinguishing feature. Although a moderate infection is associated with 3 to 5 loose stools a day, this does not distinguish it from a mild or severe infection. The patient in this scenario has 3-4 loose bowel motions a day with a positive C. difficile toxin. This information alone can not be used to grade the disease severity as the patient could be suffering from a mild, moderate or severe infection. It is the WBC count of 13 \* 109 that classifies the patient's C. difficile infection as moderate rather than mild or severe.

Potassium level is incorrect. Electrolyte imbalances may be seen in C. difficile infection but are not used in grading the severity of infection.

Duration of symptoms is incorrect. Duration of illness is not a criterion in the grading of severity of C. difficile infection.

Question:

An 81-year-old man attends the emergency department with acute knee pain. He has no other symptoms. Observations and investigations are as follows.

Respiratory rate 18/min

Oxygen saturations 99% on air

Heart rate 72/min

Blood pressure 140/71mmHg

Temperature 36.6ºC

Hb 144 g/L (135-180)

Platelets 390 \* 109/L (150 - 400)

WBC 16.4 \* 109/L (4.0 - 11.0)

CRP 42 mg/L (< 5)

X-ray right knee Normal joint space. Prominent calcification of the menisci and articular cartilage

Synovial fluid microscopy and culture White blood cells: 1700/mm³. No growth at 48 hours

What is the most likely diagnosis?

A.Gout

B.Osteoarthritis

C.Pseudogout

D.Reactive arthritis

E.Septic arthritis

Answer:Pseudogout

Explanation:

Chondrocalcinosis helps to distinguish pseudogout from gout

Important for meLess important

The correct answer is pseudogout. Also known as calcium pyrophosphate deposition disease, this is a crystal arthropathy that presents similarly to gout. Lack of crystals on microscopy would not rule these out as the sensitivity is less than 100%. The key clue here is chondrocalcinosis, the finding of calcification of the articular cartilage. Although not specific, this is suggestive of pseudogout. In the knee, this often manifests as calcification of the menisci.

Gout is incorrect. Clinically this is hard to distinguish from pseudogout. As discussed above, the x-ray findings are more suggestive of pseudogout here.

Osteoarthritis is incorrect. This typically presents with chronic rather than acute joint pain. X-ray features include narrowing of the joint space, formation of osteophytes and subchondral sclerosis and cysts. White blood cells would also not be expected in the synovial fluid in osteoarthritis.

Reactive arthritis is incorrect. This most commonly affects younger patients and generally occurs after an infective trigger such as a sexually-transmitted infection or a diarrhoeal illness. The joint pain is often accompanied by conjunctivitis and urethritis, which are not present here. It also would not explain the x-ray findings.

Septic arthritis is incorrect. This refers to bacterial infection of the joint which usually occurs by haematogenous spread. The joint is generally extremely painful with minimal range of movement and patients are often unwell with systemic upset, which is not the case here. In the absence of recent antibiotics, culture at 48 hours is very sensitive as the most common organisms (such as Staphylococcus aureus and Streptococcus pyogenes) are fairly easy to culture.

Question:

A 74-year-old woman presents to her general practitioner with breathlessness and leg swelling. She has heart failure (ejection fraction 33%), rheumatoid arthritis and type 2 diabetes mellitus. Her medications are 7.5mg bisoprolol once daily, 10mg lisinopril once daily, 20mg furosemide twice daily, 500mg metformin three times daily and 1g paracetamol four times daily.

On examination, she has mild bibasal crackles, heart sounds are normal and there is bilateral pedal pitting oedema. Heart rate is 72 beats per minute and regular, respiratory rate is 18 breaths per minute, oxygen saturations are 94% on room air, blood pressure is 124/68mmHg and her temperature is 36.2oC.

Bloods from an appointment two weeks previously:

Na+ 140 mmol/L (135 - 145)

K+ 4.2 mmol/L (3.5 - 5.0)

Bicarbonate 23 mmol/L (22 - 29)

Urea 6.2 mmol/L (2.0 - 7.0)

Creatinine 114 µmol/L (55 - 120)

What is the most appropriate medication to start?

A.Amiodarone

B.Spironolactone

C.Digoxin

D.Ivabradine

E.Amlodipine

Answer:Spironolactone

Explanation:

Offer a mineralcorticoid receptor antagonist, in addition to an ACE inhibitor (or ARB) and beta-blocker, to people who have heart failure with reduced ejection fraction if they continue to have symptoms of heart failure

Important for meLess important

Spironolactone is a mineralocorticoid receptor antagonist. According to the NICE guidelines, a mineralocorticoid receptor antagonist should be started in addition to an ACE inhibitor (or ARB) and beta-blocker, to people who have heart failure with reduced ejection fraction if they continue to have symptoms of heart failure. Serum sodium, potassium, renal function and blood pressure should be measured prior to starting a mineralocorticoid receptor antagonist and with every dose increase.

Amiodarone is not a first line treatment in heart failure and the decision to prescribe it should only be made in consultation with a cardiology specialist.

The NICE guidelines recommends digoxin if heart failure is worsening or severe, despite first line treatment. As this woman is not on a mineralocorticoid receptor antagonist, which is part of the first line treatment, she should be prescribed this first.

Ivabradine can be used in heart failure but the NICE guidelines state that it should not be used if the patients heart rate is below 75 (it is 72 in the question). Additionally ivabradine is not first line treatment.

Amlodipine is not typically used in heart failure.

Question:

An 82-year-old man presents to his GP with a three-day history of a cough productive of green sputum and shortness of breath. On examination, rhonchi are present. Observations are stable.

The GP suspects acute bronchitis.

The patient has a history of type 2 diabetes, managed with metformin and heart failure, for which he takes ramipril, bisoprolol, and furosemide.

What is the most appropriate management?

A.Admission for IV co-amoxiclav

B.Inhaled salbutamol

C.Oral doxycycline

D.Oral flucloxacillin

E.Supportive care

Answer:Oral doxycycline

Explanation:

Antibiotics are used in the management of acute bronchitis if there are co-existing co-morbidities

Important for meLess important

NICE guidance does not recommend antibiotics for acute bronchitis in people who are not at high risk of complications and who are not systemically very unwell. However, if a patient is very unwell or at risk of complications, antibiotics should be offered.

A number of features, in this case, mean that the patient is high risk: his age, his diabetes, and his heart failure. Therefore antibiotics should be offered in accordance with NICE guidelines.

Although local guidelines should always be consulted, NICE recommend oral doxycycline first-line.

NICE state that inhaled bronchodilators should not be offered to patients with acute bronchitis unless they have an underlying airway disease such as asthma.

Oral flucloxacillin is not commonly used for respiratory tract infections.

IV co-amoxiclav is not required in this case and the patient is stable and can be managed without admission.

Supportive care alone would be appropriate in a patient with a low risk of complications.

Question:

A 52-year-old man presents with a 5 day history of cough, feeling hot and facial pains. He is generally fit and well although does currently take sertraline for anxiety and depression. He describes a cough productive of pale yellow sputum. He also describes difficulty breathing through his nose and pain in his face, particularly when coughing on leaning forward.

On examination he is alert, pulse rate is 84/min, temperature is 37.3º and respiratory rate is 16/min. His blood pressure is 122/74 mmHg. Chest auscultation is unremarkable. He is tender over the maxilla.

What is the most appropriate next step in management?

A.Check serum urea for CURB-65 scoring

B.Oral amoxicillin + review in 3-4 days if not improving

C.Advise paracetamol for symptoms + review in 3-4 days if not improving

D.Arrange a chest x-ray

E.Oral clarithromycin + review in 3-4 days if not improving

Answer:Advise paracetamol for symptoms + review in 3-4 days if not improving

Explanation:

This patient has a viral upper respiratory tract infection. His examination findings are essential normal other than some facial pain associated with rhinosinusitis. He requires supportive treatment only as per NICE guidelines.

Question:

A 34-year-old man presents with progressive loss of pain and temperature sensations over his arms and shoulders. He also complains of weakness in his hands and legs. His wife notes he had burnt his hands on several occasions without realising. He denies incontinence or peri-anal numbness.

On examination, there is a spastic weakness of the lower limbs and bilateral upgoing plantars. Proprioception and vibration sensations are preserved. He is usually fit and well.

What is the most likely cause of his symptoms?

A.Cervical radiculopathy

B.Chronic inflammatory demyelinating polyradiculoneuropathy

C.Multiple sclerosis

D.Subacute degeneration of the cord

E.Syringomyelia

Answer:Syringomyelia

Explanation:

Syringomyelia classically presents with cape-like loss of pain and temperature sensation due to compression of the spinothalamic tract fibres decussating in the anterior white commissure of the spine

Important for meLess important

The history here of a patient with shawl distribution of pain and temperature loss is typical of syringomyelia, where a fluid-filled cyst (known as a syrinx) forms within the spinal cord and blocks the cerebrospinal fluid circulation. The syrinx commonly starts out in the cervical area, extending downwards through the spinal cord. It compresses the decussating spinothalamic tract, affecting pain and temperature sensation, and the corticospinal tract, causing weakness.

Cervical radiculopathy presents with pain in the neck and shoulder corresponding to a dermatome, most commonly of C7 and C6. Patients may also have muscle weakness of the upper limb, however, it does not affect the lower limb as seen here.

Chronic inflammatory demyelinating polyradiculoneuropathy is an autoimmune disorder that affects peripheral nerves. Patients present with diminished reflexes and impaired balance and sensation.

Multiple sclerosis requires signs and symptoms disseminated in time and space, rather than a progressive nature described here.

Subacute degeneration of the cord is the degeneration of the dorsal columns and the lateral columns of the spinal cord due to demyelination caused by B12 deficiency. Patients would have impaired proprioception and vibration sensations.

Question:

A 65-year-old man with metastatic prostate cancer is admitted electively to the oncology ward for radiotherapy to bone metastases at T7, T9 and L1.

His usual medications include: paracetamol 1g four times a day, tamsulosin 400 micrograms once daily, atorvastatin 80mg once nocte, morphine sulphate modified release (Zomorph) 30mg twice daily, and ramipril 5mg once daily.

During your afternoon review, he tells you that he is still suffering with pain in his back, despite taking his regular medications this morning. He thinks he usually takes another analgesic as needed, but is unsure of the name or the dose.

What will you prescribe?

A.Oramorph 5mg PO

B.Oramorph 10mg PO

C.Oramorph 10mg S/C

D.Oxycodone 10mg PO

E.Oxycodone 15mg S/C

Answer:Oramorph 10mg PO

Explanation:

Breakthrough dose = 1/6th of daily morphine dose

Important for meLess important

This question is asking you to calculate an appropriate dose of breakthrough analgesia for a patient on long-acting opioids.

This man is taking morphine sulphate modified release (Zomorph) 30mg twice a day = 60mg/day.

The correct dose for breakthrough analgesia is 1/6th of the total daily dose = 60/6 = 10mg.

There is no reason to switch to oxycodone for breakthrough analgesia.

We are not told that the patient is unable to swallow (and he has taken all of his other medications as usual), therefore the oral route is most appropriate.

Question:

A 34-year-old female with a history of primary generalised epilepsy presents to her GP as she plans to start a family. She currently takes lamotrigine as monotherapy. What advice should be given regarding the prevention of neural tube defects?

A.Folic acid 400 mcg per day once pregnancy has been confirmed

B.Folic acid 1 mg per day once pregnancy has been confirmed

C.Folic acid 5 mg per day starting now

D.Folic acid 10 mg per day starting now

E.Folic acid 400 mcg per day starting now

Answer:Folic acid 5 mg per day starting now

Explanation:

Epilepsy + pregnancy = 5mg folic acid

Important for meLess important

Given the teratogenic potential of antiepileptics, she should also be under the management of a specialist.

Question:

Where in the childhood immunisation schedule is the Meningitis B vaccine given?

A.12 months and preschool

B.2, 4, and 12 months

C.2, 3, and 4 months

D.12-13 years

E.3 and 12 months, and 12-13 years

Answer:2, 4, and 12 months

Explanation:

Meningitis B is currently the most common cause of meningococcal disease in children the UK. The Meningitis B vaccination was introduced to the NHS routine childhood immunisation schedule in 2015. It is given at 2, 4, and 12 months of age, alongside the other immunisations in the schedule. If given outside of the schedule, doses should be at least 2 months apart. When given in children over the age of one, only two doses are required.

Question:

A 23-year-old man has a known psychiatric disorder. His condition causes him to have persecutory delusions and poor organisation of thoughts. He is easily distracted and struggles to maintain good eye contact during conversations.

What factor is associated with poor prognosis in this condition?

A.Acute onset

B.Head trauma

C.Low IQ

D.No family history

E.Obvious precipitant

Answer:Low IQ

Explanation:

Low IQ has been associated with a poor prognosis in schizophrenia

Important for meLess important

This patient has schizophrenia, a mental illness characterised by psychosis. Its symptoms are split into positive and negative categories. The strongest risk factor for schizophrenia is a positive family history.

Positive symptoms include:

Delusions - unswayable beliefs incongruent with reality

Hallucinations - false perceptions in the absence of stimuli

Thought disorders - insertion (the belief that their thoughts are someone else's/put in their mind by someone else), withdrawal (the belief that thoughts are removed from their mind), broadcasting (the belief that others can their read thoughts)

Negative symptoms include:

Social withdrawal

Anhedonia (lack of interest in pursuing activities)

Lack of emotion and flat mood

Low IQ. This is correct. Low IQ is associated with a poor prognosis in schizophrenia due to the increased severity of both positive and negative symptoms of the condition. This gives a poor prognosis as antipsychotics are likely to be less effective against these more severe symptoms. Higher doses may subsequently be needed. Many antipsychotics are associated with increased risks of CVD, neutropenic sepsis (classically clozapine), and metabolic syndrome. Therefore, as patients with low IQ are more likely to need higher doses, they are at greater risk of complications from antipsychotics.

Acute onset. This is incorrect. Gradual onset is associated with poor prognosis in schizophrenia.

Head trauma. This is incorrect. There is currently no conclusive evidence to suggest head trauma worsens the prognosis of schizophrenia.

No family history. This is incorrect. Having a strong family history is associated with a poor prognosis in schizophrenia. The general population have a risk of ~1% of developing the condition. An affected first-degree relative increases the risk to 10-15%. A monozygotic twin with schizophrenia increases the risk to the other twin to 50%.

Obvious precipitant. This is incorrect. Having a lack of obvious precipitant (e.g. recreational drugs such as marijuana, cocaine and amphetamines) is a worse prognostic indicator as it means the condition has developed in the absence of the environmental risk factor.

Question:

A 22-year-old man is booked in to see you for a routine telephone appointment. His mother is concerned about his health, but he feels fine and has no concerns. His mother thinks he is isolated: he sees no friends and spends most of his time inside at the computer. You glean that this man believes the government is tracking his whereabouts and this is contributing to his reclusive habits. This young man has no psychotic symptoms and his speech, tone, and mood are all normal.

What is the most likely diagnosis?

A.Cluster B personality

B.Delusional disorder

C.Magical thinking

D.Schizophrenia

E.Schizotypal personality disorder

Answer:Schizotypal personality disorder

Explanation:

Patients diagnosed with schizotypal personality disorder lack close friends other than family and can have odd or eccentric behaviour, speech and beliefs

Important for meLess important

Schizotypal personality disorder - this is the correct answer. This is defined by a consistent pattern of intense discomfort with close relationships and social interactions. These persons usually have distorted views of reality, superstitions, and unusual behaviours.

Cluster B personality - this is incorrect. Cluster B traits include being dramatic and overly emotional, unpredictable thinking, and/or behaviour associated with the above. Cluster B includes antisocial personality disorder, borderline personality disorder, histrionic personality disorder, and narcissistic personality disorder.

Delusional disorder - this is incorrect. Delusional disorder is a type of psychotic disorder involving the presence of one or more delusions. A delusion is a fixed false belief. The belief does not form a part of the person's religion, culture, or subculture, and almost everyone knows this belief to be false.

Magical thinking - this is incorrect. This is the belief that unrelated events are causally connected despite the absence of any plausible causal link between them, particularly as a result of supernatural effects.

Schizophrenia - this is incorrect. Schizophrenia can be characterized by episodes when the person is unable to distinguish between real and unreal experiences. The incidence of severe psychotic symptoms often decreases as the person becomes older. Symptoms fall into three major categories; positive symptoms, negative symptoms, and disorganised symptoms. The severity of symptoms including psychosis and psychotic episodes delineate this disorder from personality disorders. Disorganised symptoms include confused and disordered thinking and speech, trouble with logical thinking, and sometimes bizarre behaviour or abnormal movements.

Question:

A 61-year-old woman presents with a three month's history of gradually worsening generalised right shoulder pain and stiffness. The pain is constant and does not radiate anywhere or have any associated symptoms. There is no history of trauma. She has a history of hypothyroidism treated with levothyroxine.

On examination of the right shoulder, there is no sign of swelling or deformity. Positive examination findings are that direct pressure on the coracoid elicits pain and there is impairment of active and passive external rotation.

What is the most likely diagnosis?

A.Adhesive capsulitis

B.Calcific tendonitis

C.Degenerative rotator cuff tear

D.Glenohumeral osteoarthritis

E.Subacromial impingement

Answer:Adhesive capsulitis

Explanation:

External rotation (on both active and passive movement) is classically impaired in adhesive capsulitis

Important for meLess important

Adhesive capsulitis is the correct answer. Adhesive capsulitis is sometimes called frozen shoulder and typically presents with stiffness and pain. This patient has risk factors for adhesive capsulitis including being 40-70 years old, female sex, and having thyroid disease. Pain on coracoid palpation and impairment of external rotation are classic examination findings.

Calcific tendonitis is incorrect. It presents with predominant pain rather than stiffness. On examination, pain is localized on the top or lateral aspect of the shoulder or both, often with radiation towards the insertion of the deltoid. Therefore this patient's symptoms and examination findings are not consistent.

Glenohumeral osteoarthritis is incorrect. It is an uncommon problem usually preceded by trauma. Patients complain of pain and stiffness across a range of active and passive motions, typically including abduction. Therefore this patient's symptoms and examination findings are not consistent.

Degenerative rotator cuff tear is incorrect. It does present with pain on external rotation but muscle wasting, a positive Jobe's test, and a positive Gerber's test would typically also be present.

Subacromial impingement is incorrect. It would typically present with radiating shoulder pain and difficulty abducting the arm. Therefore this patient's symptoms and examination findings are not consistent.

Question:

You are asked to review the blood results of a post-op patient following an elective cholecystectomy.

Na+ 135 mmol/l

K+ 4.8 mmol/l

Urea 16.6 mmol/l

Creatinine 278 µmol/l

Which medication should be with held?

A.Sodium valproate

B.Amlodipine

C.Sertraline

D.Enalapril

E.Digoxin

Answer:Enalapril

Explanation:

ACE inhibitors should be with held in acute kidney injury

Important for meLess important

This patient has an acute kidney injury. Enalapril is nephrotoxic and so should be with held until the patient has recovered.

Acute kidney injury is normally treated by with holding medications that are nephrotoxic, giving fluids and treating the underlying cause. This patient's likely cause of the AKI is dehydration as she was likely to be nil by mouth before the operation and may not have started to tolerate oral fluids after the operation.

The other medications are not nephrotoxic.

Question:

A 12-year-old female presents to her GP with bilateral knee pain, swelling and stiffness. On examination, a salmon-pink rash is noted on the legs.

What is the most likely diagnosis?

A.Measles

B.Henoch-Schonlein purpura

C.Juvenile idiopathic arthritis

D.Meningitis

E.Systemic lupus erythematosus

Answer:Juvenile idiopathic arthritis

Explanation:

Systemic onset JIA (AKA Still's disease) has a characteristic salmon-pink rash

Important for meLess important

Joint pain with a salmon-pink rash is characteristic of juvenile idiopathic arthritis. Henoch-Schonlein purpura can cause joint pain, but the rash is palpable and purpuric. Meningitis causes a non-blanching purpuric rash with no joint pain. Systemic lupus erythematosus can cause joint pain and rash but is unusual in children and the rash is usually on the face. Measles can cause a pink rash but not joint pain.

Question:

A 65-year-old gentlemen presents to the General Practitioner (GP) with shortness of breath, fatigue, and a malar flush on his cheeks. Cardiovascular examination reveals a regular, low-volume pulse and a mid-diastolic murmur loudest with the patient leaning to his left-hand side.

What ECG change might the GP expect to see in this patient?

A.Right bundle branch block

B.P mitrale

C.P pulmonale

D.Tented T waves

E.Left bundle branch block

Answer:P mitrale

Explanation:

P Mitrale represents left atrial hypertrophy/strain e.g. in mitral stenosis

Important for meLess important

This patient has severe, symptomatic mitral stenosis. In the early stages of mitral stenosis, the ECG is often normal. However in moderate and severe disease leading to left atrial enlargement/hypertrophy, the ECG will often show a bifid P wave. This is because the enlarged left atrium now makes a greater contribution to the P wave contour. The bifid P wave is termed P Mitrale since mitral valve stenosis is the commonest cause of its appearance on ECG. Right bundle branch block is often a sign of problems on the right side of the heart such as right ventricular hypertrophy, cor pulmonale, pulmonary embolism, and is not a common ECG finding in mitral stenosis. Left bundle branch block is also not a common finding in mitral stenosis, with common causes including ischaemic heart disease, hypertension, aortic stenosis, and cardiomyopathy. Tall Tented T waves are seen in hyperkalaemia, and P Pulmonale (which looks like a peaked P wave) reflects any process causing the right atrium to become hypertrophied such as tricuspid regurgitation and pulmonary hypertension.

Question:

A 55-year-old female presents with symptoms of fatigue. Blood tests reveal:

Na+ 142 mmol/l

K+ 4.2 mmol/l

Urea 5.9 mmol/l

Creatinine 81 mol/l

Hb 10 g/dl

MCV 110 fl

Platelets 300 \* 109/l

WBC 5 \* 109/l

A blood film shows hypersegmented neutrophils.

Which investigation will most likely confirm the diagnosis?

A.Iron studies

B.Haematinics (including B12 / folate)

C.APTT

D.Bone marrow biopsy

E.Hb electrophoresis

Answer:Haematinics (including B12 / folate)

Explanation:

This patient has a macrocytic anaemia. Hypersegmented neutrophils on the blood film indicate a megaloblastic anaemia. The haematinics blood test detects levels of serum B12 and folate - a deficiency of which produces megaloblastic anaemia, therefore this is the best test to confirm the findings on the blood film.

Iron studies are unnecessary - a raised MCV excludes iron deficiency.

Platelet count is normal and there is no indication in the history or blood results to assess the patients APTT.

Bone marrow biopsy is not indicated, white cell count and platelet counts are normal.

Hb electrophoresis is used to detect haemoglobinopathies such as sickle cell or thalassemia. These do not cause macrocytic anaemia.

Question:

A 25-year-old woman presents at 37 weeks gestation with a 3-day history of headaches and lower limb swelling.

On examination, her heart rate is 85 bpm, her blood pressure is 170/84 mmHg, and a urine dipstick demonstrates proteinuria. During the examination, she has a generalised tonic-clonic seizure which resolves spontaneously. An emergency caesarean section is decided upon and another seizure occurs.

What is the most appropriate next step in her management?

A.Labetalol until 24 hours after delivery or until seizure stops

B.Labetalol until 24 hours after last seizure or 24 hours after delivery

C.Magnesium sulfate until 24 hours after delivery or until seizure stops

D.Magnesium sulfate until 24 hours after last seizure or 24 hours after delivery

E.Nimodipine until 24 hours after delivery or until seizure stops

Answer:Magnesium sulfate until 24 hours after last seizure or 24 hours after delivery

Explanation:

Magnesium treatment should continue for 24 hours after delivery or after last seizure

Important for meLess important

Magnesium sulfate until 24 hours after last seizure or 24 hours after delivery is correct. This patient initially had features of pre-eclampsia due to her hypertension, proteinuria, and lower limb oedema, however, it has progressed to eclampsia due to the development of generalised tonic-clonic seizures. The key steps in the management of eclampsia are preventing seizures and delivery of the baby, and magnesium sulfate is the agent of choice for managing the seizures and provides neuroprotection to the baby. This should continue for at least 24 hours after the delivery or 24 hours after the last seizure as some patients may still develop eclampsia following delivery during this period.

Magnesium sulfate until 24 hours after delivery or until seizure stops is incorrect. Although giving magnesium sulfate is the most appropriate initial step of the options listed, it should be continued for at least 24 hours after the delivery or 24 hours after the last seizure as some patients may still develop eclampsia following delivery during this period. Stopping the magnesium sulfate immediately after this patient's last seizure still has a risk of another seizure occurring, therefore it should be continued for another 24 hours after.

Labetalol until 24 hours after delivery or until seizure stops is incorrect. Although this patient should also be given antihypertensive therapy, of the options listed, the most appropriate management step is giving magnesium sulfate to terminate the seizures, which is the primary concern. Correcting hypertension alone is unlikely to resolve the seizures.

Labetalol until 24 hours after last seizure or 24 hours after delivery is incorrect. Similarly to the above, management of the seizures takes greater priority than antihypertensive control. Correcting her hypertension alone is unlikely to resolve the seizures.

Nimodipine until 24 hours after delivery or until seizure stops is incorrect. This is used in the management of hypertension in pregnancy where beta-blockers are contraindicated (such as in patients with asthma). As mentioned above, management of the seizures is more important than antihypertensive control. Correcting hypertension alone is unlikely to resolve the seizures.

Question:

A 23-year-old man is brought in by ambulance to the emergency department after having a 5-minute tonic-clonic seizure. He was previously fit and well with no previous seizures. He does not take any regular medication and drinks 5 units of alcohol per week.

Blood tests are unremarkable and a plain CT head has been reported as normal. An EEG is performed and also reported as normal.

A referral to the first seizure clinic has been arranged, but in the meantime, he is worried about the impact on his daily life as he normally drives a car to his office every day, where he works as an accountant.

What is the appropriate advice to give regarding his driving as per the Driver and Vehicle Licensing Agency (DVLA) guidelines?

A.No driving for 5 years and must notify DVLA

B.No driving for 6 months and must notify DVLA

C.No driving for 6 months and no need to notify DVLA

D.No driving for 12 months and must notify DVLA

E.No driving for 12 months and no need to notify DVLA

Answer:No driving for 6 months and must notify DVLA

Explanation:

Patients cannot drive for 6 months following a first unprovoked or isolated seizure if brain imaging and EEG normal

Important for meLess important

DVLA guidelines are clear on driving restrictions after a first seizure. For Group 1 (car and motorbike) licence holders, the DVLA must be notified and the driving licence will be taken away. The patient can reapply if he has not had a seizure for 6 months. After that time, the medical advisers will decide if his ongoing risk of another seizure is high enough to warrant further suspension of driving.

It would be incorrect and illegal to not notify the DVLA, as a medical assessment is required at the end of the 6-month period.

A minimum 5-year driving ban would be imposed if this one-off seizure occurred in a Group 2 (bus and lorry) driver.

A 12-month break from driving is excessive, although of course notifying the DVLA would be warranted.

A 12-month break without even notifying the DVLA would be inappropriate.

Question:

A 26-year-old woman attends to her GP concerned that she has not felt her baby kick yet. She is currently 21 weeks pregnant and his is her first pregnancy. She is concerned because her friends who have been pregnant had already felt their baby move by this point.

At which week should you refer to an obstetrician for lack of fetal movements?

A.21 weeks

B.22 weeks

C.23 weeks

D.24 weeks

E.25 weeks

Answer:24 weeks

Explanation:

If fetal movements have not yet been felt by 24 weeks, referral should be made to a maternal fetal medicine unit

Important for meLess important

Most women begin to feel their baby moving around 18-20 weeks but ranges from 16-24 weeks. You should start becoming concerned if no fetal movements are felt at 24 weeks. There are many causes for a lack of fetal movement, the most upsetting being miscarriages and stillbirth. Therefore, if no fetal movements are felt at 24 weeks, the fetal heartbeat is checked and an ultrasound may be offered to check for any abnormalities.

Question:

Steven is a 40-year-old male that was diagnosed with post-traumatic stress disorder (PTSD) following a motorcycle accident two years ago. Since the accident, Steven has had a lot of trouble with sleep. He finds that he often wakes up in the night due to nightmares and struggles to get back to sleep. He finds this is having a big impact on his day to day life as he no longer has the energy to play with his young children.

Steven has undertaken several sessions of cognitive behavioural therapy (CBT), but he has found this has had little effect on his symptoms.

What would be the appropriate drug treatment in the management of Steven's condition?

A.Amitriptyline

B.Diazepam

C.Risperidone

D.Venlafaxine

E.Zopiclone

Answer:Venlafaxine

Explanation:

If CBT or EMDR therapy are ineffective in PTSD, the first line drug treatments are venlafaxine or a SSRI

Important for meLess important

Venlafaxine is the correct answer. The first-line drug treatment for PTSD is venlafaxine or a selective serotonin reuptake inhibitor (SSRI) such as sertraline.

Tricyclic antidepressants, such as amitriptyline, are sometimes used to treat PTSD in adults. Although, they are not currently part of NICE guidance and can only be used under the supervision of a mental health specialist.

Diazepam and zopiclone are hypnotic agents that can be used in the short term management of insomnia. These are only recommended by NICE to be used in the short term (for <1 week) for people with severe symptoms or an acute exacerbation. These drugs also do not address the underlying cause of the patient's lack of sleep in this situation: his PTSD.

Risperidone can sometimes be used in the management of PTSD if both of the following are met:

Patients have disabling symptoms and behaviours. For example, severe hyperarousal or psychotic symptoms.

Symptoms have not responded to other drug or psychological treatments.

Question:

A 25-year-old man presents to his GP demanding a CT scan of his abdomen. He states it is 'obvious' he has cancer despite previous negative investigations. This is an example of a:

A.Hypochondrial disorder

B.Conversion disorder

C.Munchausen's syndrome

D.Dissociative disorder

E.Somatisation disorder

Answer:Hypochondrial disorder

Explanation:

Unexplained symptoms

Somatisation = Symptoms

hypoChondria = Cancer

Important for meLess important

Question:

A 73-year-old woman who has previously had a total hip replacement (THR) presents for review due to pain on the side of her prosthesis. What is the most common reason that a revision operation would need to be performed in a patient who has had a THR?

A.Aseptic loosening of the implant

B.Autoimmune reaction to the implant

C.Infection

D.Fracture of the implant or surrounding bone

E.Implant passes expiry date

Answer:Aseptic loosening of the implant

Explanation:

Aseptic loosening is the most common reason total hip replacements need to be revised

Important for meLess important

Other common reasons for revision include pain and dislocation.

Question:

A 23-year-old female with a history of diarrhoea and weight loss has a colonoscopy to investigate her symptoms. A biopsy is taken and reported as follows:

Pigment laden macrophages suggestive of melanosis coli

What is the most likely diagnosis?

A.Intestinal melanoma

B.Haemochromatosis

C.Ulcerative colitis

D.Laxative abuse

E.Colorectal cancer

Answer:Laxative abuse

Explanation:

Question:

You are a junior doctor covering the coronary care unit (CCU). You are called urgently to a 45-year-old man admitted yesterday following a non-ST-elevation myocardial infarction (NSTEMI). On arrival there are no signs of life and a cardiac arrest call has been put out. The senior nurse looking after him reports he was alert and talking moments ago before collapsing.

You look up at the monitor and see rapid disorganised electrical activity in lead II compatible with VF. The nurse administers the first shock of 360J monophasic. The monitor still shows VF.

What is the next correct action?

A.Feel for a carotid or radial pulse

B.Begin chest compressions at a ratio of 30:2

C.Begin uninterrupted chest compressions

D.Administer amiodarone 300mg

E.Give another shock

Answer:Give another shock

Explanation:

Witnessed cardiac arrest while on a monitor - up to three successive shocks before CPR

Important for meLess important

The 2015 ALS guidelines endorse three quick successive ('stacked') shocks in cases of monitored and witnessed cardiac arrest (if VF / pVT).

Chest compressions at a rate of 30:2 would be correct in cases of cardiac arrest that are not witnessed and monitored, or in PEA/asystole.

Amiodarone 300mg is administered after the third shock (in shockable rhythms).

Question:

A 23-year-old woman is brought to the Emergency department in a collapsed state. She has taken an overdose of 50x100mg amitriptyline tablets. Her Glasgow coma scale is 9 on arrival, blood pressure is 90/60 mmHg, pulse is 102 beats per minute and regular. Chest is clear.

Investigations:

Na+ 135 mmol/l

K+ 5.1 mmol/l

HCO3- 15.1 mmol/l

Urea 10.5 mmol/l

Creatinine 155 µmol/l

pH 7.25

ECG: QRS 120ms.

She suffers a short tonic clonic seizure whilst you are examining her.

What is the most important medication to give next?

A.Amiodarone

B.Bisoprolol

C.Lignocaine

D.Sodium bicarbonate

E.Verapamil

Answer:Sodium bicarbonate

Explanation:

This patient is acidotic with a QRS interval greater than 100ms. This indicates significant risk of ventricular arrhythmia. In this situation use of sodium bicarbonate will improve the acidosis, promote protein binding of calcium thus improving myocardial contractility, and reduce the risk of ventricular arrhythmias. Current practice includes the use of either 50-100ml of 8.4% solution, or 500ml of 1.26% solution depending on the status of venous access.

Class 1a, 1c anti-arrhythmics, beta blockers and amiodarone should all be avoided, because they actually worsen conduction abnormalities in this setting.

Lignocaine response may be minimal, hence correction of acidosis is the primary intervention in this situation.

College of Emergency Medicine guidelines:

secure.rcem.ac.uk/code/document.asp?ID=5075

Question:

A 67-year-old woman presents to her GP as she is concerned that her hearing has deteriorated over the past 3 months. She also describes a constant ringing in her right ear and notices that she sometimes loses her balance.

She has a background of hypertension, congestive heart failure, type 2 diabetes and hypothyroidism.

Which medication may have contributed to her presentation?

A.Amlodipine

B.Atorvastatin

C.Furosemide

D.Levothyroxine

E.Metformin

Answer:Furosemide

Explanation:

Loop diuretics may cause ototoxicity

Important for meLess important

The correct answer is furosemide. Loop diuretics, like furosemide, can cause ototoxicity. This is likely to present with hearing loss, tinnitus and balance issues. In a 67-year-old, a potential differential would be age-related hearing loss, but this would not present so acutely (over 3 months).

The other medications listed are not associated with ototoxicity in the British National Formulary (BNF).

Amlodipine is a calcium channel blocker typically given for hypertension. It is not known to be ototoxic, although some cases of tinnitus have been reported.

Atorvastatin is among the most commonly prescribed statins. Ototoxicity is not an attributed side effect, although statins can cause hepatotoxicity.

Levothyroxine is taken to supplement thyroid hormones in the case of hypothyroidism.

Metformin is a first-line medication for type 2 diabetes. It is not associated with ototoxicity.

Question:

A 23-year-old man presents to the emergency department following a recent diagnosis of migraine by his GP. He describes the headaches as right-sided, lasting around 6 hours, and brought on by work stress. He often feels nauseated with the headaches which resolve when he lies in a quiet room. He has a past history of depression and takes sertraline. He has no allergies. Neurological examination is unremarkable. The doctor reviewing him is concerned about a medication he has started for his symptoms.

What is the medication that the doctor is most likely to be concerned about in this patient?

A.Ibuprofen and omeprazole

B.Metoclopramide

C.Paracetamol

D.Prochlorperazine

E.Sumatriptan

Answer:Sumatriptan

Explanation:

Triptans should be avoided in patients taking a SSRI

Important for meLess important

This patient is presenting with an acute migraine and should be managed with anti-emetics and analgesia. Due to his history of depression being managed with sertraline (a selective serotonin reuptake inhibitor (SSRI)), he should not be managed with sumatriptan. This is due to the risk of serotonin syndrome occurring. Serotonin syndrome can present with agitation, hypertension, twitching muscles, and dilated pupils.

Ibuprofen and other NSAIDs can cause gastric irritation and should be given concomitantly with a PPI (such as omeprazole). This will mitigate the increased risk of gastrointestinal bleed when giving patients on sertraline and other SSRI drugs an NSAID.

Metoclopramide is commonly used as an anti-emetic in the management of nausea and vomiting secondary to migraine. This patient has no contraindications to the use of metoclopramide.

Paracetamol can be given to this patient as he has no history of chronic hepatic impairment. This can be used as part of the analgesic ladder for the management of his acute migraine.

Prochlorperazine is an alternative option for the management of this patient’s nausea. There is no reason why prochlorperazine cannot be given to a patient who is taking an SSRI.

Question:

A 22-year-old female presents to her GP with a positive home pregnancy test. The first day of her last menstrual period was nine weeks ago. She is also complaining of dysuria with increased frequency and urgency of urination. Her past medical history includes epilepsy, for which she takes lamotrigine 100mg bd and asthma for which she uses a salbutamol inhaler PRN and beclomethasone inhaler 400micrograms bd. She was recently admitted to hospital with an acute exacerbation of asthma and was discharged with a five day course of oral prednisolone 50mg od.

Dipstick urinalysis is positive for leucocytes and nitrites. You send off a urine sample for culture.

Which of the following medications is not safe to use during the first trimester of pregnancy?

A.Lamotrigine

B.Nitrofurantoin

C.Trimethoprim

D.Salbutamol inhaler

E.Prednisolone

Answer:Trimethoprim

Explanation:

Trimethoprim is teratogenic in the first trimester and should be avoided during pregnancy

Important for meLess important

Trimethoprim is a folate antagonist and so is teratogenic in the first trimester of pregnancy. The BNF states that the manufacturers advise avoiding its use throughout pregnancy. NICE guidelines advise prescribing nitrofurantoin 50mg qds or 100mg modified release bd for seven days first line for pregnant women with a UTI. This should be avoided in women at full-term due to the risk of neonatal haemolysis.

Inhaled medications for asthma can be taken as normal during pregnancy. The benefits of corticosteroid treatment during pregnancy are considered to outweigh the risks. The BNF states that 88% of prednisolone is inactivated as it crosses the placenta and there is no evidence of intra-uterine growth restriction with short courses.

The risk to the baby from the mother suffering an epileptic seizure needs to be balanced against the risk to the baby of congenital abnormalities from the anti-epileptic medication. Lamotrigine monotherapy at lower doses has one of the lowest risks of major congenital malformation in the baby. The BNF advises that the dose of lamotrigine should be adjusted on the basis of plasma-drug concentration monitoring during pregnancy.

Question:

A 25-year-old man presents to his GP for a review of his current medication.

He was started on citalopram for the treatment of depressive symptoms four months ago. Today he feels that his symptoms have much improved, and he feels back to his normal self. The patient states that he feels he no longer needs to be on this antidepressant medication.

In order to reduce the chances of relapse, what should the GP advise?

A.Continue citalopram for 2 more months

B.Continue citalopram for 3 more months

C.Continue citalopram for 6 more months

D.Gradually reduce citalopram dose over the next 4 weeks

E.Stop taking citalopram

Answer:Continue citalopram for 6 more months

Explanation:

Antidepressants should be continued for at least 6 months after remission of symptoms to decrease risk of relapse

Important for meLess important

Continue for 6 more months is correct. Antidepressant medication should be continued for 6 months from the point at which remission of symptoms is achieved. This is to help prevent a relapse. While continuing for 2 more months would provide a total of 6 months treatment, remission of symptoms has only recently been achieved and so in accordance with the guidance this patient should receive 6 months of treatment from now.

Continue for 2 more months is incorrect. Although continuing treatment for another 2 months would give a total of 6 months of treatment, this is incorrect as outlined above.

Continue for 3 more months is incorrect. Antidepressants should be continued for at least 6 months after remission of symptoms. Therefore, this answer is incorrect.

Gradually reducing doses over 4 weeks is incorrect. This is the correct approach to weaning SSRIs and preventing discontinuation syndrome, however, it is not appropriate until treatment has been continued for 6 months from the point of remission.

Stopping taking citalopram is incorrect. Stopping citalopram immediately would be unsafe and put this patient at risk of developing SSRI discontinuation syndrome or a relapse of their depression.

Question:

A 17-year-old man attends the local sexual health clinic. He has developed a large, keratinised genital wart on the shaft of his penis. This has been present for around three months but he has been too embarrassed to present before now. What is the most appropriate initial management?

A.Topical aciclovir

B.Cryotherapy

C.Topical salicylic acid

D.Electrocautery

E.Topical podophyllum

Answer:Cryotherapy

Explanation:

Genital wart treatment

multiple, non-keratinised warts: topical podophyllum

solitary, keratinised warts: cryotherapy

Important for meLess important

As the wart is keratinised cryotherapy should be used initially.

Question:

Systemic lupus erythematosus (SLE) is an inflammatory multisystem disorder. The pathogenesis involves immune system dysregulation.

What type of hypersensitivity is this defined as?

A.Type 1 hypersensitivity

B.Type 2 hypersensitivity

C.Type 3 hypersensitivity

D.Type 4 hypersensitivity

E.Type 5 hypersensitivity

Answer:Type 3 hypersensitivity

Explanation:

Systemic lupus erythematosus is a type 3 hypersensitivity reaction

Important for meLess important

Type 3 is characterised by antigen-antibody complexes. The pathogenesis of SLE involves cellular remnants containing nuclear material being transferred to lymphatic tissues. They are then presented to T cells which in turn stimulate B cells to produce autoantibodies. IgG autoantibodies are primed to attack DNA and other nuclear material which results in antigen-antibody complexes causing damage in various areas.

Question:

A 35-year-old man attends the emergency department with severe back pain and a high fever. The pain started non-specifically in his lower back three days ago and has increased in severity since, now radiating to his left thigh and groin. Laying on his back brings some relief, as does keeping his left knee slightly flexed and his hip externally rotated. Hip extension is particularly painful.

He is a known intravenous drug user.

On examination, he has a fever of 38.2ºC and is tachycardic at 132 beats per minute. He has a mild systolic murmur and tenderness over L1 to L3.

His urine dip shows protein 1+, blood 1+ and is negative for nitrites and leukocytes.

Which of the following is the most likely cause of his back pain?

A.Pyelonephritis

B.Infective endocarditis

C.Reactivation of Hep C

D.Psoas abscess

E.Vertebral osteomyelitis

Answer:Psoas abscess

Explanation:

Psoas abscess is an important differential for back pain in an IVDU

Important for meLess important

The most likely diagnosis with this patient is a psoas abscess. This patient also likely has infective endocarditis, as evidenced by the presence of blood and protein on the urine dip and the systolic murmur heard on auscultation. This is not likely however to be the cause of his back pain.

Vertebral osteomyelitis is another highly likely differential and may be difficult to distinguish from a psoas abscess. Vertebral osteomyelitis is a relatively rare condition, generally affecting young children and older adults, however intravenous drug use can be a risk factor. Additionally, psoas abscesses can be secondary to osteomyelitis, and vice versa.

The discriminating element here is pain on hip extension and the positioning the patient adopts. The psoas muscle is involved in hip flexion, and therefore in movements that stretch the psoas muscle (i.e. hip extension) in the presence of an abscess will cause pain. This will not be the case in osteomyelitis. Additionally the posture reflects the position that puts the least strain on the psoas muscle.

Question:

You are working in a district general hospital and are asked to perform a new-born baby check on an infant born earlier that day. You're part of the paediatric team and haven't had any access to the antenatal notes.

On inspection, the infant has a notable cleft palate but otherwise appears well. He is of appropriate weight for gestational age and has a strong cry. He has a clear chest and no murmurs on cardiac auscultation.

Which of the following is the most likely association?

A.Congenital heart disease

B.Maternal anti-epileptic use in pregnancy

C.Maternal SSRI use in pregnancy

D.Maternal varicella infection during pregnancy

E.Trisomy 21

Answer:Maternal anti-epileptic use in pregnancy

Explanation:

Maternal anti-epileptic use during pregnancy can cause orofacial clefts

Important for meLess important

Orofacial clefts are a common malformation with many associated risk factors which can be split into those due to events in pregnancy (smoking, benzodiazepine use, anti-epileptic use, rubella infection) and syndromic disorders affecting the baby (trisomies 18, 13 and 15).

Management requires a multiple disciplinary approach, involving plastic and orthodontic surgeons, paediatricians and speech therapists.

Congenital heart disease does not confer an increased risk of orofacial clefts.

Trisomy 21 does not have a relative risk increase of orofacial clefts but does have an association with congenital heart disease and also specific facial dysmorphic features (small ears, small nose, eyes that slant upwards etc).

SSRIs in pregnancy are considered safe and not teratogenic.

Maternal varicella infection can cause a cornucopia of complications but cleft palate is not one of them. It is associated with foetal varicella syndrome which incorporates: skin scarring, eye defects (small eyes, cataracts or chorioretinitis) and neurological defects (reduced IQ, abnormal sphincter function, microcephaly).

Question:

A 25 year old woman with a known diagnosis of premenstrual syndrome (PMS) attends her GP requesting some medical treatment. She has made the suggested lifestyle modifications, with little improvement in her symptoms. She is not planning on starting a family any time soon. Which of the following treatments would be most suitable to offer her, assuming that there are no contraindications?

A.Amitriptyline

B.Depo-Provera

C.Combined oral contraceptive pill

D.Progesterone only pill

E.Pyridoxine (vitamin B6)

Answer:Combined oral contraceptive pill

Explanation:

PMS is defined as a condition which manifests with distressing physical, psychological and behavioural symptoms in the absence of an organic disease. These symptoms regularly occur during the luteal phase of the menstrual cycle and improve at the end of menstruation.

Symptoms include depression, anxiety, irritability, bloating and mastalgia. The precise aetiology is unknown, however it is associated with the hormonal changes that occur following ovulation. The absence of PMS before puberty, in pregnancy and after the menopause further support this theory.

The type of treatment is determined by the severity of symptoms, patient preference and desire for pregnancy.

Management of PMS includes lifestyle advice - healthy diet, exercise, reduction in stress levels and regular sleep.

The combined oral contraceptive pill and selective serotonin re-uptake inhibitors are recommended for moderate to severe symptoms.

Progesterone alone is not recommended for women with PMS, due to insufficient evidence on efficacy.

Most complementary treatments, for example pyridoxine (vitamin B6) are not recommended due to little evidence on their benefits and weak or inconclusive evidence regarding safety.

(Source - CKS PMS)

Question:

A 62-year-old man presents to the GP due to worsening urinary symptoms. He describes frequent urges to pass urine throughout the day and has occasionally experienced incontinence. He denies any hesitancy, dribbling or weak stream. He has trialled bladder retraining with minimal success.

On examination, his prostate is smooth, regular and not enlarged. A recent PSA (prostate-specific antigen) blood test was normal.

The man has no medical history and takes no regular medications.

What is the most appropriate management?

A.Finasteride

B.Furosemide

C.Mirabegron

D.Oxybutynin

E.Tamsulosin

Answer:Oxybutynin

Explanation:

Antimuscarinic drugs are useful in patients with an overactive bladder

Important for meLess important

This man presents with symptoms of an overactive bladder, which presents with storage symptoms such as urgency and frequency. There are no voiding symptoms present. The first-line treatment after lifestyle measures is bladder training. However, this has not worked for this man. The next step is to trial an antimuscarinic agent, such as oxybutynin. These medications antagonise contractions of the detrusor muscle.

Finasteride is a 5-alpha reductase inhibitor used in benign prostatic hyperplasia. It reduces the volume of the prostate, hence reducing associating voiding symptoms. This man does not have voiding symptoms and his prostate is not enlarged. Finasteride is unlikely to help him.

Furosemide may be used for symptoms of nocturia, as it leads to increased urine production in the day by reducing renal reabsorption of solutes and subsequently water. The urine production is then reduced at night when this effect has worn off. This man is not suffering from nocturia. Furosemide would not help his overactive bladder and may worsen his symptoms.

Mirabegron is another medication used for an overactive bladder. It is a beta-3 agonist and causes relaxation of the detrusor muscle, increasing the bladder's storage capacity. It is a second-line medication for an overactive bladder and is used if antimuscarinics are not tolerated or not effective.

Tamsulosin is an alpha-adrenergic blocker that relaxes the smooth muscle in the prostate. It is hence used to relieve voiding symptoms associated with benign prostatic hyperplasia, which this patient does not have. It is not used in the management of an overactive bladder.

Question:

Samantha is a G2P1 27-year-old female who comes to you, a locum general practitioner, because she has just found out she is pregnant. You notice that Samantha is on a number of medications for a variety of medical conditions. Samantha's medical history includes asthma, gastro-oesophageal reflux, constipation and a recent deep vein thrombosis. Her current medications include senna, over the counter ranitidine, budesonide and salbutamol inhalers, and rivaroxaban. None of her medications have yet been altered due to her pregnancy status.

Which one of Samantha's medications must be changed?

A.Senna

B.Ranitidine

C.Budesonide

D.Salbutamol

E.Rivaroxaban

Answer:Rivaroxaban

Explanation:

Novel oral anticoagulants are contraindicated for use in pregnancy and therefore women already on NOACs should be changed over to low molecular weight heparin

Important for meLess important

Rivaroxaban is a novel oral anticoagulant, and these are contraindicated for use in pregnancy. These anticoagulant medications can cause placental haemorrhage and subsequent fetal pre-maturity and fetal loss.

Note: warfarin is also contraindicated for use in pregnancy as it can lead to warfarin embryopathy in 5% of fetuses exposed to warfarin between six to thirteen weeks. This is variable in severity and can range from mild nasal flattening to severe mid-face flattening and short limbs (dwarfism). Warfarin exposure in the 2nd or 3rd trimester carries an additional 5% risk of fetal intracerebral haemorrhage.

If anti-coagulation is necessary, after weighing up the benefits and risks, pregnant woman should be changed over to low molecular weight heparin. This is the sole anti-coagulant agent which has been shown to be safe in pregnancy.

All of the other medications listed are safe for use in pregnancy and have not been correlated to cause fetal malformations or harm.

Question:

A 2-month-old baby presents with gradually worsening noisy breathing which is especially noticeable when she feeds. She is on a lower centile for weight gain and has poor milk intake.

What is the most likely diagnosis?

A.Congenital subglottic stenosis

B.Laryngomalacia

C.Congenital vocal cord paralysis

D.Croup

E.Adenotonsillar hypertrophy

Answer:Laryngomalacia

Explanation:

Laryngomalacia is the most common cause of stridor in infants. It occurs due to a floppy epiglottis which folds into the airway on inspiration. This is normally a self-limiting condition, but if the stridor becomes severe with signs of respiratory distress, or if there is failure to thrive (due to poor feeding), then surgery is recommended to improve the airway.

Question:

A 21-year-old woman comes to see you because she has missed a dose of her combined oral contraceptive pill (COCP). She is on day 10 of her current packet and missed the pill yesterday, around 26 hours ago. She has taken all other pills on time and has not had any recent diarrhoea or vomiting. Her last episode of unprotected sexual intercourse was 12 hours ago. The patient calls to ask whether she needs emergency contraception.

What would be the most appropriate management option for this woman?

A.No emergency contraception required

B.Offer the Depo-Provera (medroxyprogesterone) contraceptive injection

C.Perform a pregnancy test and offer emergency contraception

D.Prescribe emergency contraception

E.Suggest she has a copper coil inserted

Answer:No emergency contraception required

Explanation:

COCP: If 2 pills are missed in week 1, consider emergency contraception if she had unprotected sex during the pill-free interval or week 1

Important for meLess important

Patients who are on the combined oral contraceptive pill need to be offered emergency contraception if they have missed two or more pills and have had unprotected sexual intercourse during the pill-free period or week 1 of the pill packet. This woman has missed only one pill on day 9 and therefore does not require emergency contraception. Emergency contraception would be required if she had unprotected sex during the pill-free interval or during week 1 (days 1-7) of the pill packet and had missed two pills.

As this woman has missed only one pill, she does not require a pregnancy test at this point. However, if she had missed two pills and there was a history of erratic pill-taking then it would be sensible to carry out a pregnancy test prior to prescribing emergency contraception.

If this woman had missed 2 pills during days 1-7 of her pill packet and also had unprotected sex over this time period, then she should be offered emergency contraception. There are various different forms of emergency contraception available and the choice of agent depends on the timing of the unprotected intercourse event, other medications the woman may be taking, and her preferences. EllaOne (ullipristal acetate) is licensed for use up to 120 hours after unprotected intercourse, and Levonelle (levonorgestrel) is licensed for use up to 96 hours after unprotected intercourse.

Offering to insert a copper coil to prevent pregnancy would be inappropriate this patient does not require emergency contraception. If she was having trouble remembering to take her pill correctly and wished to consider a long-acting contraceptive, then you could use this opportunity to counsel her on her options, which would include intrauterine devices, subnormal contraceptive implants, and the contraceptive injection.

The contraceptive injections are used for long term contraception but can not be used as a form of emergency contraception and is therefore not an appropriate choice in this case.

Question:

A 21-year-old woman with a history of eczema presents with a change in the colour of her skin affecting the hands and feet symmetrically:

What is the most likely diagnosis?

A.Excessive topical corticosteroid use

B.Leprosy

C.Tuberous sclerosis

D.Vitiligo

E.Pityriasis versicolor

Answer:Vitiligo

Explanation:

Question:

An 8-year-old child is brought into the emergency department after having 5 episodes of bloody diarrhoea. Her parents say that the diarrhoea began 3 days ago after a barbecue at a friends house but it did not turn bloody until today. On examination, the child is pyrexial at 38 degrees with diffuse abdominal pain. Blood test are taken which show a thrombocytopenia, raised urea, creatinine and lactate dehydrogenase.

Which of the following organisms has most likely caused this infection?

A.Escherichia coli

B.Campylobacter jejuni

C.Listeria monocytogenes

D.Norovirus

E.Giardia lamblia

Answer:Escherichia coli

Explanation:

Haemolytic uraemic syndrome - classically caused by E coli 0157:H7

Important for meLess important

All of the answer given could be a possible cause of food poisoning. However, in this case, the child is not just showing signs of food poisoning but also early signs of haemolytic uraemic syndrome. This can be seen by the diarrhoea which becomes bloody 1-3 days after its onset along with the blood results. Haemolysis, anaemia, thrombocytopenia, and a raised lactate dehydrogenase, urea and creatinine all point towards haemolytic uraemic syndrome in this case.

Whilst there are many different bacteria that can cause haemolytic uraemic syndrome, Escherichia coli strain O157:H7 is the most common. It is not the bacteria itself but instead the shiga toxin that causes the problems and it is believed that a bacteriophage was responsible for transferring the genes to Escherichia coli which enable it to produce the highly toxic shiga toxin.

Question:

A 26 year-old woman presents to her GP with a 3 month history of inter-menstrual bleeding and occasional post-coital bleeding. She is sexually active and takes Microgynon (a combined oral contraceptive pill). Her last cervical smear was normal.

What is the most likely diagnosis?

A.Cervical cancer

B.Endometrial cancer

C.Ectopic pregnancy

D.Cervical ectropion

E.Ovulation

Answer:Cervical ectropion

Explanation:

In a young woman taking COCP, cervical ectropions are a common finding in the context of post-coital bleeding. Whilst cervical cancer should be considered, a recent normal smear makes this less likely and ectropion would be more likely regardless.

Question:

A 55-year-old male presents to the emergency department after a two-day history of non-specific abdominal pain and constipation. His stools have been harder recently, and this morning he had an episode of bleeding per rectum.

His observations show a heart rate of 110 beats per minute, a respiratory rate of 14 breaths per minute, a blood pressure of 128/72 mmHg, and a temperature of 37.8 ºC. He denies any other past medical history.

The team decides to perform a CT scan that shows the following:

© Image used on license from Radiopaedia

Which one of the following is the most likely diagnosis?

A.Acute appendicitis

B.Colorectal carcinoma

C.Diverticulosis

D.Diverticulitis

E.Ulcerative colitis

Answer:Diverticulitis

Explanation:

The correct answer is diverticulitis, an inflammation of a diverticulum. A diverticulum is an out-pouching of the gastric mucosa, usually caused by straining and constipation. This pathology presents with low-grade pyrexia, left inferior quadrant pain, with nausea and vomiting. In some cases, like this one, per rectum bleeding can be present. On the CT scan, we can observe the diverticula, pericolic stranding, enhancement of the colonic wall, and fat enhancement on the patient's left side. On the scan, you can notice this by looking on the upper left side.

Acute appendicitis would present with fever and abdominal pain, but the inflammatory radiographic signs would be on the right side of the bowel. On a CT scan, it would present with appendiceal dilatation, right-sided wall thickening and enhancement, and signs of inflammation around the appendiceal zone such as fat stranding and thickening. This CT underlines left-sided changes and no appendiceal enlargement.

Colorectal carcinoma would lead to less inflammatory change, usually involving shorter segments of the bowel. The majority of them presents as soft tissue density that narrow the bowel lumen, which cannot be observed in this scan. Additionally, the patient has no risk factors for large bowel cancer, other than a recent change in bowel habits that can be attributed to diverticulitis.

Diverticulosis is the presence of multiple outpouchings of the bowel wall, but it is not symptomatic per se. When the diverticula get inflamed, it then becomes symptomatic. The patient has pain, making this diagnosis the wrong one. On a CT scan, you would identify multiple outpouchings, but no inflammatory signs such as pericolic stranding and wall thickening.

Ulcerative colitis causes an inflammatory picture, but it is classically accompanied by diarrhoea and not constipation. Additionally, it usually presents at an earlier age. On a CT scan, you would be able to see circumferential, symmetrical wall thickening with fold enlargement. This is not present in the image of this case. Additionally, you would be able to observe fat deposition around the rectum and a more widespread inflammation that is absent in this CT scan.

Question:

A 38-year-old lady who smokes heavily presents with recurrent episodes of infection in the right breast. On examination, she has an indurated area at the lateral aspect of the nipple areolar complex. Imaging shows no mass lesions. What is the most likely diagnosis?

A.Duct ectasia

B.Periductal mastitis

C.Paget's disease of the nipple

D.Mondor's disease of the breast

E.Radial scar

Answer:Periductal mastitis

Explanation:

Periductal mastitis is common in smokers and may present with recurrent infections. Treatment is with co-amoxiclav. Mondor's disease of the breast is a localised thrombophlebitis of a breast vein.

Question:

A 74-year-old man presents to the emergency department with an 8-hour history of headache, vomiting, and blurred vision. Preceding history includes the patient being at a party and drinking brandy. Past medical history includes asthma, type 2 diabetes mellitus and diverticular disease. Observations and blood glucose level are normal.

A drug interaction is suspected as the cause.

What medication is most likely responsible for this presentation?

A.Beclometasone

B.Metformin

C.Metronidazole

D.Montelukast

E.Sitagliptin

Answer:Metronidazole

Explanation:

A disulfiram-like reaction can occur if metronidazole and alcohol are taken together

Important for meLess important

This scenario describes a 74-year-old patient presenting with a headache, vomiting, and blurred vision on a background of multiple comorbidities and drinking alcohol. Given the medication list, the single best answer would be metronidazole. Metronidazole is an antibiotic medication which may be used in diverticulitis and is associated with a disulfiram-like reaction when taken with alcohol. Disulfiram is a medication which can be used to aid alcohol abstinence and it inhibits acetaldehyde dehydrogenase, which results in a build-up of acetaldehyde which gives hangover-like symptoms.

Beclometasone is a steroid, which can be used as an inhaled preventative medication for asthma. Whilst inhaled corticosteroids can cause headaches, the above presentation sounds more typical of a disulfiram-like reaction, especially with the background of recent alcohol use.

Metformin is a medication commonly used in type 2 diabetes mellitus. A disulfiram-like reaction is not described with a metformin and alcohol combination.

Montelukast is not correct. Montelukast is a leukotriene receptor antagonist which can be used in asthma management. It is not associated with the above-described disulfiram-like reaction.

Sitagliptin is not correct. Sitagliptin is a sulphonylurea medication used in type 2 diabetes mellitus. Side effects can include headache and hypoglycaemia, but it is not associated with disulfiram-like reactions as described above.

Question:

A 29-year-old woman presents to the Emergency Department with a 4-day history of vomiting. She has vomited 5 times a day for the past 4 days.

When asked about pregnancy, she states her periods are always 'all over the place'.

On examination, her chest is clear, heart sounds are normal and she has a non-tender but distended abdomen.

Her temperature is 37ºC, oxygen saturation 98% on air, heart rate 110 beats per minute, respiratory rate 20 breaths per minute, and blood pressure 110/70 mmHg.

Blood results:

Hb 116 g/L Male: (135-180)

Female: (115 - 160)

Platelets 160 \* 109/L (150 - 400)

WBC 5.6 \* 109/L (4.0 - 11.0)

CRP 4 mg/L (< 5)

βhCG 453,000 mIU/ml

What is the most likely diagnosis?

A.Acute appendicitis

B.Complete hydatidiform mole

C.Ectopic pregnancy

D.Intrauterine pregnancy

E.Small bowel obstruction

Answer:Complete hydatidiform mole

Explanation:

Complete hydatidiform mole - presents with uterus size greater than expected for gestational age and abnormally high serum hCG

Important for meLess important

The most likely diagnosis is a complete hydatidiform mole. The patient has a distended abdomen which could be a sign of a larger than expected uterus for gestational age (however gestational age is not given or eluded to in the question). The serum βhCG is 453,000 mIU/ml which is very high, in keeping with a diagnosis of complete hydatidiform mole. 300,000 mIU/ml is approximately the upper limit of expected βhCG in an intrauterine pregnancy during weeks 9-12. Morning sickness can be more severe in molar pregnancies. An ultrasound scan should be used to investigate molar pregnancy which would show a snowstorm appearance. The diagnosis can then be confirmed with histology after evacuation.

Acute appendicitis is a diagnosis to consider for this demographic of patients however, her abdomen is non-tender on palpation which makes the diagnosis less likely, and CRP and white cells are not raised. CRP is often raised in appendicitis, however, a normal CRP does not rule out appendicitis. It is rare (but possible) for appendicitis to occur with a normal white cell count. Acute appendicitis would not cause high serum βhCG.

Ectopic pregnancy is an important diagnosis to consider in any woman of childbearing age presenting with abdominal pain, vaginal bleeding, or signs of shock. Serum βhCG is unlikely to be as high for an ectopic pregnancy, but this does need to be ruled out.

The serum βhCG is higher than would be expected in an intrauterine pregnancy. An ultrasound scan will differentiate between a normal intrauterine pregnancy and a molar pregnancy.

Small bowel obstruction is a diagnosis to consider when a patient presents with vomiting. This would usually be accompanied by abdominal pain and a history of not passing stool or flatus so it is unlikely in this scenario. It would also not be associated with high serum βhCG.

Question:

A 65-year-old woman has a 6-week history of muscle weakness bilaterally of the shoulders and hips. She cannot get out of a chair unaided and has breathlessness and fatigue.

Her heart rate is 98 bpm and her blood pressure is 130/75 mmHg. Proximal muscle strength is 4/5 symmetrically, and distal strength is normal. There are no skin rashes or signs of arthralgia.

Blood tests show:

Hb 116 g/L (115 - 160)

WBC 7.5 \* 109/L (4.0 - 11.0)

Na+ 140 mmol/L (135 - 145)

K+ 4.9 mmol/L (3.5 - 5.0)

Creatine kinase 1250 U/L (35 - 250)

Urea 6.7 mmol/L (2.0 - 7.0)

Creatinine 115 µmol/L (55 - 120)

ESR 60 mm/hr (<40)

What is the most likely diagnosis based on these features?

A.Dermatomyositis

B.Motor neurone disease

C.Polymyalgia rheumatica

D.Polymyositis

E.Systemic sclerosis

Answer:Polymyositis

Explanation:

Proximal muscle weakness + raised CK + no rash → ?polymyositis

Important for meLess important

Polymyositis is the correct answer. The patient in the vignette has presented with true bilateral proximal muscle weakness (as her power is 4/5 on examination), shortness of breath, and fatigue. Her blood tests show an elevated ESR and creatine kinase (CK, released from inflamed and damaged muscle tissue), suggesting inflammation and muscle injury, which makes polymyositis the most likely diagnosis.

Dermatomyositis is incorrect. Dermatomyositis would be considered if the patient in the vignette had the same signs and features alongside skin changes, particularly a heliotrope (purple) rash in the periorbital region or extremely dry and scaly hands or Gottron's papules (roughened red papules over the finger extensor surfaces). No skin changes are mentioned, making this diagnosis less likely.

Motor neurone disease (MND) is incorrect. Although MND can cause muscle weakness, hallmark features of MND include fasciculations, muscle wasting, and a mixture of upper motor neurone and lower motor neurone signs. These features are not mentioned in the vignette. Furthermore, MND is not associated with muscle tissue inflammation or an elevated CK.

Polymyalgia rheumatica (PMR) is incorrect. Although PMR can present similarly with generalised fatigue and symmetrical proximal muscle weakness, this weakness is not true (on examination, muscle power is preserved). True weakness is not considered to be a feature of PMR. Furthermore, PMR is not associated with a raised CK.

Systemic sclerosis is incorrect as one of its hallmark features is the presence of sclerotic and hardened skin, which is not seen in this patient. There are no other features that may suggest the presence of systemic sclerosis (trunk and proximal limb weakness with skin changes) or that of CREST syndrome (CREST syndrome: Calcinosis, Raynaud's phenomenon, oEsophageal dysmotility, Sclerodactyly, Telangiectasia; a subtype of limited cutaneous systemic sclerosis). Systemic sclerosis is also not associated with a raised CK.

Question:

A 65-year-old diabetic woman has noticed her urine has become frothy and presents to her GP. He performed a urinalysis and finds protein in the urine. As part of the workup of a suspected diabetic nephropathy, she is sent for an ultrasound. Which of the following would you expect to see in the ultrasound report?

A.Bilaterally enlarged kidneys

B.A horseshoe kidney

C.A unilateral enlarged kidney

D.A unilateral shrunken kidney

E.Gross dilation of the ureters

Answer:Bilaterally enlarged kidneys

Explanation:

Chronic diabetic nephropathy will have large/normal sized kidneys on ultrasound whereas most patients with chronic kidney disease have bilateral small kidneys

Important for meLess important

This question is asking for the ultrasound findings of a patient with diabetic nephropathy. In diabetic nephropathy, the kidneys can either be bilaterally enlarged (in early disease) or normal size (in later disease). Therefore from the options above bilaterally enlarged kidneys is the correct answer.

Shrunken kidneys are seen in most cases of chronic kidney disease, this will be bilateral or unilateral depending on the underlying cause. Notable exceptions that may present with enlarged kidneys including polycystic kidney disease, amyloidosis and HIV-associated nephropathy.

Gross dilation of the ureters may be seen hydronephrosis that may occur in renal stones or vesicoureteric reflux.

A horseshoe kidney is a congenital defect of the kidneys.

Question:

A 4-year-old boy presents with a 2-day history of passing loose stools and non-bilious vomiting. He has passed 5 loose stools and vomited 2 times over the last 48 hours. No visible mucus or blood seen in the stool, and urine output has not changed according to his mother. He is able to tolerate oral fluid and liquid food.

He has not travelled abroad recently and there are no sick contacts. His vaccination schedule is up-to-date and there are no concerns regarding his growth and development.

On examination, he appears well and is alert and responsive. He has warm extremities and capillary refill time is <2 seconds. His vital signs are normal. Peripheral pulses are strong and regular. There is normal skin turgor and there are no sunken eyes.

How should the patient be managed?

A.Encourage drinking of undiluted fruit juice or carbonated drinks as this will increase his fluid intake

B.Introduce oral rehydrating solution (ORS)

C.Start intravenous fluid therapy

D.Use anti-diarrhoeal medications

E.Use empirical antibiotic to shorten the disease duration

Answer:Introduce oral rehydrating solution (ORS)

Explanation:

Do not use antidiarrhoeal medications in children under 5 years old with diarrhoea and vomiting caused by gastroenteritis

Important for meLess important

The most likely diagnosis for this patient is gastroenteritis. There are no signs and symptoms suggesting clinical dehydration ( warm extremities, normal capillary refill time, normal vital signs, strong peripheral pulses, normal skin turgor and no sunken eyes).

Do not use antidiarrhoeal medications in children under 5 years old with diarrhoea and vomiting caused by gastroenteritis [NICE 2009]. . Antidiarrhoeal and antimotility agents are contraindicated in the treatment of acute gastroenteritis in children because of their lack of benefit and increased risk of side effects, including ileus, drowsiness, and nausea.

Discourage the drinking of fruit juices and carbonated drinks, especially in those at increased risk of dehydration [NICE 2009]. Fruit juice without extra water or carbonated drinks has too much sugar in it and this can draw water from the body into the gut, making the child more dehydrated.

Do not routinely give antibiotics to children with gastroenteritis [NICE 2009] because treatment is not effective on symptoms and does not prevent complications.

The patient does not require antibiotic treatment. Antibiotic treatment is only recommended to all children:

with suspected or confirmed septicaemia

with extra-intestinal spread of bacterial infection

younger than 6 months with salmonella gastroenteritis

who are malnourished or immunocompromised with salmonella gastroenteritis

with Clostridium difficile-associated pseudomembranous enterocolitis, giardiasis, dysenteric shigellosis, dysenteric amoebiasis or cholera [NICE 2009].

IV fluid therapy is not necessary for this patient as he is not clinically dehydrated. Oral rehydrating solution (ORS) in addition to an increment of daily fluid is sufficient to rehydrate him.

Intravenous fluid therapy is indicated for clinical dehydration if:

shock is suspected or confirmed

a child with red flag symptoms or signs shows clinical evidence of deterioration despite oral rehydration therapy

a child persistently vomits the ORS solution, given orally or via a nasogastric tube.

Question:

A 24-year-old female presents with a one day history of dysuria and urinary frequency. She was diagnosed with a simple urinary tract infection and prescribed a three day course of trimethoprim. She returns two weeks later with new onset vaginal discharge. A whiff test is negative and no clue cells are observed on microscopy.

What is the most likely explanation?

A.The strain of the likely causative agent is intrinsically resistant to the antibiotic

B.The strain of the likely causative agent has developed extrinsic resistance to the antibiotic

C.The patients vaginal discharge is most likely caused by a fungal infection

D.The patients vaginal discharge is probably not caused by infection

E.The antibiotic is not sufficiently bactericidal for this infection

Answer:The patients vaginal discharge is most likely caused by a fungal infection

Explanation:

Candidial infection ('thrush') is extremely common and is often precipitated or exacerbated by recent antibiotic exposure, so this is the most likely cause in this case. Vaginal discharge is not a feature of a urinary tract infection.

Question:

The INR of a patient who has recently started treatment for tuberculosis drops from 2.6 to 1.3. Which one of the following medications is most likely to be responsible?

A.Rifampicin

B.Streptomycin

C.Ethambutol

D.Isoniazid

E.Pyrazinamide

Answer:Rifampicin

Explanation:

Rifampicin is a P450 enzyme inductor

Important for meLess important

Rifampicin is a P450 enzyme inducer and will therefore increase the metabolism of warfarin, therefore decreasing the INR.

Question:

A 66-year-old woman comes to see you as she has ongoing symptoms of dyspepsia which are relieved by omeprazole. She has been using omeprazole 20 mg once a day for the past 2 years.

Which one of the following is a disadvantage of using a proton-pump inhibitor (PPI) long-term?

A.Increased risk of myocardial infarction

B.Increased risk of stroke

C.Increased risk of fractures

D.Increased risk of liver impairment

E.Increased risk of developing diabetes

Answer:Increased risk of fractures

Explanation:

PPIs can increase the risk of osteoporosis and fractures

Important for meLess important

The BNF states that PPI's are used at the lowest effective dose for the shortest period and the need for long-term treatment should be reviewed periodically.

Long-term use of PPI's can mask the symptoms of gastric cancer. They can also increase the risk of osteoporosis and fractures -due to malabsorption of calcium and magnesium.

Question:

A 64-year-old woman with type 2 diabetes mellitus presents as she has started to bump into things since the morning. Her medications include metformin, simvastatin and aspirin. Over the previous two days she had noticed numerous 'dark spots' over the vision in her right eye. Examination reveals she has no vision in her right eye. The red reflex on the right side is difficult to elicit and you are unable to visualise the retina on the right side during fundoscopy. Examination of the left fundus reveals changes consistent with pre-proliferative diabetic retinopathy. What is the most likely diagnosis?

A.Occlusion of central retinal vein

B.Vitreous haemorrhage

C.Proliferative retinopathy

D.Cataract

E.Retinal detachment

Answer:Vitreous haemorrhage

Explanation:

The history of diabetes, aspirin use, complete loss of vision in the affected eye and inability to visualise the retina point towards a diagnosis of vitreous haemorrhage. Please see the table below for help in differentiating retinal detachment from vitreous haemorrhage.

Question:

A 24-year-old man presents with a new rash which is pictured below. He is unsure how long this rash has been present, but his friend alerted him to it yesterday whilst he was out swimming. The rash is not itchy or painful. Other than suncream, the patient does not use any products on his skin, and he has not changed laundry powder recently.

© Image used on license from DermNet NZ

What is the most appropriate management of this rash?

A.Advise the rash is self-limiting and no treatment is required

B.Prescribe hydrocortisone cream

C.Prescribe ketoconazole shampoo

D.Prescribe terbinafine cream

E.Send skin scrapings for microscopy

Answer:Prescribe ketoconazole shampoo

Explanation:

The image above shows a widespread rash over the back, upper arms and neck. The rash is formed of multiple brown macules, some of which are confluent and some of which are discrete. Light scales can be seen on the macules. These are typical features of the rash caused by pityriasis versicolor, a common fungal infection of the skin which typically presents on sebum-rich areas such as the chest and back. The lesions are often insidious in onset and can be asymptomatic or mildly itchy. As this is a fungal infection, treatment is with an anti-fungal. For small affected areas, an anti-fungal cream may be effective. However, this rash is more widespread. An anti-fungal shampoo, such as ketoconazole shampoo would, therefore, be more efficacious to use.

As the underlying cause of this rash is a fungal infection, the rash will not clear until the fungal infection is cleared. Therefore, advise no treatment is required is incorrect.

Topical steroids such as hydrocortisone are not typically used for pityriasis versicolor, as there is not typically an inflammatory component to the rash. The underlying pathology is a fungal infection.

Terbinafine cream is an example of an anti-fungal cream. Anti-fungal creams may be used in pityriasis versicolor if only a small area is affected and cream can be easily applied - for example, if there is a localised rash on the lower abdomen. This is not the case for this patient. As all of the skin yeasts need to be eradicated, all of the affected skin must be covered in treatment. As the rash is widespread (it can be seen on multiple body parts, including the arms, neck and upper and lower back), and also on the back (which is harder to reach), this will be done more easily with shampoo.

Skin scrapings for microscopy are not typically needed for pityriasis versicolor, as this rash is common and typically easy to diagnose clinically based on the appearance and history. Skin scrapings may be sent if treatment fails and there is diagnostic doubt.

Question:

You are a doctor working on the paediatric ward. A 6-year-old patient has become unresponsive. After calling another doctor to assist, you open the patient's airway and feel for breathing, but the child is not breathing. You give five rescue breaths while the other doctor checks for a femoral pulse, which is not present. Now you decide to start CPR while waiting for further help to arrive.

What is the appropriate rate of chest compressions and ratio of chest compressions:rescue breaths to use in this child?

A.Chest compressions rate of 100-120/min, ratio of 15:2

B.Chest compressions rate of 100-120/min, ratio of 30:2

C.Chest compressions rate of 120-150/min, ratio of 15:2

D.Chest compressions rate of 120-150/min, ratio of 30:2

E.Chest compressions rate of 80-100/min, ratio of 15:2

Answer:Chest compressions rate of 100-120/min, ratio of 15:2

Explanation:

Paediatric BLS: chest compressions should be 100-120/ min for both infants and children

Important for meLess important

Chest compressions rate of 100-120/min, ratio of 15:2 is the correct answer. Chest compressions should be at a rate of 100-120/min for CPR for both infants and children. This is the same rate that should be used in adults. A ratio of 15:2 should be used for CPR in infants and children when there are two or more rescuers with a duty to respond, as in this scenario.

A ratio of 30:2 is used in infants and children when CPR is being performed by lay rescuers. This is the same ratio used for CPR in adults.

It is important not to perform chest compressions too fast. Higher rates don't give a long enough diastolic phase for blood to return to the ventricles. Therefore chest compressions rate of 120-150/min are too fast and not recommended.

In paediatric BLS you reduce the pressure by only using one hand but the rate of compressions is the same. Chest compressions rate of 80-100/min are incorrect as they would not move enough blood to perfuse all the vital organs.

Question:

A newborn baby is found to had a head circumference above the 99th percentile. After further imaging she is found to have a hydrocephalus.

Which of the following is a cause of congenital hydrocephalus?

A.Down's syndrome

B.Polydactyly

C.Patent ductus arteriosus

D.Arnold-Chiari malformation

E.Achondroplasia

Answer:Arnold-Chiari malformation

Explanation:

Arnold-Chiari malformation can cause non-communicating hydrocephalus

Important for meLess important

The Arnold-Chiari malformation is the only option strongly associated with congenital hydrocephalus. The Arnold-Chiari malformation involves the cerebellum herniating through the Foramen magnum. It can be congenital or acquired (through trauma).

Down's syndrome is a chromosomal disorder which causes pathology in many organ systems. Polydactyly is a congenital disorder resulting in extra digits. Patent ductus arteriosus affects the cardiovascular system. Achondroplasia is a form of dwarfism not associated with hydrocephalus.

Question:

A 52-year-old woman presents to her GP with a persistent rash. She describes it as being itchy and being on the palms and inside the elbow creases.

On examination, there are several violaceous, polygonal papules and plaques with some overlying white scale, on the palms and flexor surfaces of the arms. Close examination of the hands also reveals mild oncodystrophy.

Given the likely diagnosis, what is the most appropriate management?

A.Oral acitretin

B.Oral ciclosporin

C.Oral prednisolone

D.Topical betamethasone

E.Topical emollient

Answer:Topical betamethasone

Explanation:

Potent topical steroids are the first-line treatment for lichen planus

Important for meLess important

The correct answer is topical betamethasone. The diagnosis here is that of lichen planus, given the clear description and distribution of the rash. The first-line treatment for this condition is potent topical steroids; patients may have already tried mild steroids over-the-counter, which will have been unsuccessful.

Oral acitretin is incorrect. This is a retinoid and may be used second-line, but potent steroids should be tried first. Acitretin also plays a role in the management of psoriasis.

Oral ciclosporin is incorrect. This is an immunomodulator and may be used third-line, once other options have failed. It would not be used first-line, given its extensive side effects.

Oral prednisolone is incorrect. As an oral steroid, this would be an alternative second-line option to acitretin. First, however, topical steroids should be tried, due to fewer systemic side effects than oral steroids.

Topical emollient is incorrect - whilst often useful in generally alleviating itchy symptoms of a rash, they will do nothing to actually control the lichen planus.

Question:

A 24-year-old woman presents to her GP 8 days after giving birth. She complains of a persistent pink vaginal discharge which is 'smelly'. On examination her pulse is 90 / min, temperature 38.2ºC and she has diffuse suprapubic tenderness. On vaginal examination the uterus feels generally tender. Examination of her breasts is unremarkable. Urine dipstick shows blood ++. What is the most appropriate management?

A.Arrange urgent ultrasound to exclude retained products + send MSSU + take high vaginal swab

B.Send MSSU + take high vaginal swab + start oral co-amoxiclav + metronidazole

C.Take high vaginal swab + paracetamol 1g qds with review tomorrow

D.Admit to hospital

E.Send MSSU + take high vaginal swab + start oral co-amoxiclav

Answer:Admit to hospital

Explanation:

This woman by definition has puerperal pyrexia, likely secondary to endometritis. She needs to be admitted for intravenous antibiotics.

Question:

A 71-year-old man presents with a burning sensation around his right eye. On examination an erythematous blistering rash can be seen in the right trigeminal distribution. What is the most likely diagnosis?

A.Ramsay Hunt syndrome

B.Cluster headache

C.Fungal keratitis

D.Herpes zoster ophthalmicus

E.Trigeminal neuralgia

Answer:Herpes zoster ophthalmicus

Explanation:

Question:

A 35-year-old man has a 3-week history of progressive pain in his left calf. The pain is worse with activity, present at rest, but relieved by hanging his legs over the bedside. He has a medical history of hypertension and diabetes mellitus.

On examination, the left calf is paler than the right, and pulses are difficult to palpate. A small ulcer is noted on the dorsum aspect of the left foot. The right calf is unaffected. Magnetic resonance angiography demonstrates a stenotic lesion 8 cm in length in the femoral artery.

What is the most appropriate definitive management for this condition?

A.Endovascular revascularization

B.Femoral artery bypass surgery

C.Femoral endarterectomy

D.IV unfractionated heparin

E.Left lower limb amputation

Answer:Endovascular revascularization

Explanation:

Peripheral arterial disease with critical limb ischaemia: high-risk patients with short segment stenosis are more suited to endovascular revascularization

Important for meLess important

Endovascular revascularization is the correct answer. This patient in the vignette has features of peripheral arterial disease (more specifically, critical limb ischaemia) due to left calf pain that is worse on exertion and persistent at rest. Hanging the leg over the bedside helps alleviate symptoms of critical limb ischaemia by encouraging blood flow to the affected limb. The presence of rest pain in the foot for more than two weeks and ulceration confirms the diagnosis of critical limb ischaemia.

The definitive management steps are either endovascular or surgical. Investigations such as magnetic resonance angiography can aid decision-making. As the stenotic lesion in the vignette is <10 cm (8cm), the limb is likely viable and endovascular revascularisation (such as percutaneous transluminal angioplasty with/without stent insertion) is appropriate.

Femoral artery bypass surgery is incorrect. Surgical management options in critical limb ischaemia are preferred if there are long segment lesions (>10 cm). As the magnetic resonance angiography demonstrated the presence of an 8 cm long lesion, endovascular methods are preferred. Bypass surgery carries more risks, such as infection, bleeding, and graft failure.

Femoral endarterectomy is incorrect. Surgical management options in critical limb ischaemia are preferred if there are long segment lesions (>10 cm). As the magnetic resonance angiography demonstrated the presence of an 8 cm long lesion, endovascular methods are preferred.

IV unfractionated heparin is incorrect. Unfractionated heparin is used to manage acute limb-threatening ischaemia, which presents more suddenly (over days instead of weeks) and typically has features of the 6P's (pale, pulseless, painful, paralysed, paraesthetic, and perishingly cold). Since this patient's symptoms have been ongoing for two weeks, this is not the likely diagnosis. Although IV unfractionated heparin may be used before surgery to prevent thrombus propagation, it is not definitive management for critical limb ischaemia itself.

Left lower limb amputation is incorrect. Limb amputation will be considered if the limb is unviable or attempts at revascularisation are unsuccessful. Patients with significant gangrene and nerve damage (e.g. sensory loss) are more likely to have an unviable limb. There is no evidence in this vignette to suggest that the affected limb is unviable.

Question:

A 64-year-old woman books an appointment to discuss her recent blood results. These were done as part of routine monitoring for her hypertension, she has no symptoms of note.

Hb 107 g/L Female: (115 - 160)

Platelets 320 \* 109/L (150 - 400)

WBC 4.0\* 109/L (4.0 - 11.0)

MCV 107 fl (80-100)

Ferritin 50 ng/mL (20 - 230)

Vitamin B12 142 ng/L (200 - 900)

Folate 9.5 nmol/L (> 3.0)

Based upon these results, which is the most important test to now request?

A.Faecal calprotectin

B.Schilling test

C.Tissue Transglutaminase Antibodies (TTG)

D.Serum gastric parietal cell antibodies

E.Serum intrinsic factor antibodies

Answer:Serum intrinsic factor antibodies

Explanation:

Intrinsic factor antibodies are more useful than gastric parietal cell antibodies when investigating vitamin B12 deficiency, given low specificity of gastric parietal cell antibodies

Important for meLess important

Pernicious anaemia (PA) is a disease of the stomach that results in vitamin B12 deficiency and macrocytic anaemia. Intrinsic factor antibodies are highly specific but only present in 50-60% of cases. A positive result is diagnostic of PA but is not necessary for a diagnosis. Gastric parietal cell antibodies, whilst highly sensitive for PA, have a low specificity and are not generally tested for.

A faecal calprotectin would be an appropriate first line investigation for inflammatory bowel disease.

A schilling test involves administering radiolabeled B12. Given that artificial B12 replacement is now widely available it is generally no longer needed.

TTG is a first line blood test to investigate coeliac disease, it would be particularly important if there was an iron-deficiency anaemia.

Question:

A 72-year-old man is hospitalised after complaining of persistent cough, weight loss, and haemoptysis for 3 months. He has no significant past medical history, except for some chest infections. He has a 20-pack-year smoking history.

On further questioning, he states that he has recently experienced abdominal pain, decreased appetite, and memory problems. Blood tests reveal the following:

Calcium 2.9 mmol/L (2.1-2.6)

Thyroid-stimulating hormone (TSH) 4.3 mU/L (0.5-5.5)

Parathyroid hormone (PTH) 10 pg/mL (14-65)

Alkaline Phosphatase (ALP) 82 IU/L (44-147)

What is the most likely underlying pathology?

A.Bone metastasis

B.Chronic kidney disease (CKD) resulting in hypercalcemia

C.Ectopic PTH secretion from squamous cell lung cancer

D.Parathyroid hormone-related protein (PTHrP) secretion from squamous cell lung cancer

E.Primary hyperparathyroidism

Answer:Parathyroid hormone-related protein (PTHrP) secretion from squamous cell lung cancer

Explanation:

In hypercalcaemia secondary to malignancy, PTH is low, although PTHrP may be raised

Important for meLess important

This elderly patient has the classic presentation of lung cancer - cough, weight loss, and haemoptysis on a background of smoking. However, he is also experiencing symptoms associated with hypercalcemia (moans and psychiatric overtones). This is most likely caused by his squamous cell carcinoma of the lung secreting PTHrP. Malignancy is the most common cause of hypercalcemia amongst hospitalised patients. This would explain his raised calcium and compensatory decreased PTH.

Bone metastasis would present with symptoms of hypercalcemia and the PTH would also be low - however, this would present with bone pain and the ALP would likely be raised.

CKD resulting in hypercalcemia is incorrect. We are not given the GFR for this patient and thus cannot state his current renal status. Furthermore, CKD would cause hypocalcemia due to decreased vitamin D synthesis.

Ectopic PTH secretion from squamous cell lung cancer is incorrect as PTH secretion is not considered a paraneoplastic feature of lung cancers. Furthermore, the PTH is low in this patient.

Primary hyperparathyroidism is one of the most common causes of hypercalcemia. However, as previously stated, this patient has a low PTH and so other causes (e.g. malignancy) must be considered.

Question:

A 52-year-old Caucasian male presents with facial erythema, papules and telangiectasia. You diagnose him with acne rosacea. Which of the following is likely to be the most effective treatment for prominent telangiectasia?

A.Topical steroids

B.Topical tacrolimus

C.UV therapy

D.Laser therapy

E.Cryotherapy

Answer:Laser therapy

Explanation:

Laser therapy is often the most effective treatment for prominent telangiectasia in rosacea

Important for meLess important

Laser therapy is often the most effective treatment for prominent telangiectasia in acne rosacea, though topical tacrolimus may be beneficial as an adjunct to this. The other options are not used to treat telangiectasia.

Question:

A 24-year-old male presents with a painless testicular lump. On examination the lump is hard and irregular. Which is the most appropriate investigation to request?

A.Testicular ultrasound scan

B.Beta-hCG

C.Surgical biopsy

D.CT pelvis

E.Bone scan

Answer:Testicular ultrasound scan

Explanation:

The first-line investigation of a testicular mass is an ultrasound

Important for meLess important

This patient has typical features of testicular cancer. Testicular ultrasound scan is the first line investigation for suspected testicular cancers.

Beta-hCG may be raised in some testicular cancers, usually non-seminomas. As this test is not sensitive for all types of testicular cancer it is not used as a first line investigation.

Surgical biopsy is unnecessarily invasive at this stage.

A CT scan would expose the patient to unnecessary radiation.

A bone scan is used to help stage some forms of cancers after they have been diagnosed but is not a first line investigation for cancer.

Question:

Mrs Wilson, a 47-year-old woman, presents to the emergency department with a 24-hour history of acute epigastric abdominal pain along with nausea and vomiting. Her pain is worse on eating and when she lies down but improves on leaning forward.

She claims this has never happened before but, in the past, has experienced colicky upper abdominal pain.

On general observation she appears to be very sweaty, and appears to have a large body habitus. Mild scleral icterus is also noted in examination.

Routine bloods and a serum amylase have been sent, with results pending.

What is the immediate next investigation you would want to do for this patient?

A.CT abdomen

B.Endoscopic retrograde cholangiopancreatography (ERCP)

C.MRI abdomen

D.Ultrasound abdomen

E.X-ray abdomen

Answer:Ultrasound abdomen

Explanation:

Early ultrasound imaging in acute pancreatitis is important to determine the aetiology as this may affect management (e.g. patients with gallstones/biliary obstruction)

Important for meLess important

The pattern of pain and patient's history suggests acute pancreatitis. The patients past history of colicky upper abdominal pain as well as the presence of scleral icterus would increase suspicions of the presence gall stones/biliary colic. Hence the correct answer in this situation would be an early ultrasound, as it is a rapid bedside investigation that can be carried out while waiting for blood results to be returned. An ultrasound of the abdomen can diagnose the presence of gallstones and help to guide management.

A CT abdomen is not necessarily required to make a diagnosis of pancreatitis if the patient has classical clinical signs of epigastric pain as well as a raised serum amylase/serum lipase. That being said, CT scan would be carried out to confirm pancreatic inflammation if the bloods returned as normal. CT scans are also the preferred modality to assess severity of the disease and to look for complications, such as abscess formations or pseudocyst formations. But would not be the immediate next step in the case of this patient.

ERCP is not indicated at this stage and will only be required if worsening liver function tests are detected or if gallstones are seen on ultrasound imaging.

MRI is not generally used to diagnose acute pancreatitis.

Abdominal x-rays are not the preferred mode of investigation to diagnose pancreatitis, as very few significant changes will be seen with this modality of imaging. The only change of note that may be seen would be pancreatic calcifications - which is not diagnostic of pancreatitis.

Question:

A 60-year-old woman who is known to have metastatic breast cancer presents following a grand mal seizure at home. For the past few weeks she has been having progressively worsening headaches. Given the likely diagnosis, what is the most appropriate first-line management whilst she is awaiting brain imaging?

A.Prednisolone

B.Paracetamol

C.Diazepam

D.Fluid restriction

E.Dexamethasone

Answer:Dexamethasone

Explanation:

This woman is likely to have cerebral metatases. The first-line treatment is high-dose dexamethasone which may reduce cerebral oedema. There may also be a role for anti-epileptics such as phenytoin to reduce the frequency of seizures.

Question:

During a 6-week baby check, you notice a flat, 30x20mm, pink-coloured, vascular skin lesion over the nape of the baby's neck, which blanches on pressure. On further questioning, this area has been present since birth and has not changed significantly. They are developing normally.

What is the most likely underlying diagnosis?

A.Atopic dermatitis

B.Port wine stain

C.Salmon patch

D.Spider angioma

E.Strawberry naevus

Answer:Salmon patch

Explanation:

Salmon patches are a vascular birthmark which usually self resolve

Important for meLess important

A flat vascular lesion present from birth would only include a port-wine stain and a salmon patch from the list above. Salmon patches are more common and in particular tend to affect the nape of the neck with a pink, rather than deeper red, discolouration and are therefore most likely.

Atopic dermatitis does not present at birth but may develop later, in particular on the flexural areas, including the neck.

Strawberry naevi tend to present shortly after birth and are raised from the skin surface and have a variable clinical course including involution, regression or persistence.

Question:

A 27-year-old primiparous female is at 39 weeks gestation. A midwife examines the patient and determines her Bishop score to be 4. What does this mean?

A.The cervix is 4cm dilated

B.Labour is unlikely to start spontaneously

C.The baby will require specialist support

D.The baby is at a +4cm station

E.The cervix is ripe

Answer:Labour is unlikely to start spontaneously

Explanation:

The Bishop scoring system is used to assess the need for induction. It takes into account cervical characteristics (position, consistency, effacement and dilatation) and foetal station. A Bishop score less than 5 generally means induction will likely be necessary. A score above 9 indicates labour will likely occur spontaneously.

Question:

A 41-year-old woman presents with palpitations and heat intolerance. On examination her pulse is 90/min and a small, diffuse goitre is noted which is tender to touch. Thyroid function tests show the following:

Thyroid stimulating hormone (TSH) < 0.05 mu/l (0.5-5.5 mu/l)

Free T4 24 pmol/l (9-18 pmol/l)

What is the most likely diagnosis?

A.Grave's disease

B.Sick thyroid syndrome

C.De Quervain's thyroiditis

D.Hashimoto's thyroiditis

E.Toxic multinodular goitre

Answer:De Quervain's thyroiditis

Explanation:

Thyrotoxicosis with tender goitre = subacute (De Quervain's) thyroiditis

Important for meLess important

Whilst Grave's disease is the most common cause of thyrotoxicosis it would not cause a tender goitre. In the context of thyrotoxicosis this finding is only really seen in De Quervain's thyroiditis.

Hashimoto's thyroiditis is an autoimmune disorder of the thyroid gland. It is typically associated with hypothyroidism although there may be a transient thyrotoxicosis in the acute phase. The goitre is non-tender in Hashimoto's.

Question:

A 70 year old lady with a background of type 2 diabetes mellitus and alcohol abuse presents with a fever and productive cough. She reports no weight loss or haemoptysis. She was born in England and has never travelled outside of the United Kingdom. She has never smoked cigarettes. On examination she has crackles in her right upper lobe but is otherwise well and stable. Chest radiograph reveals consolidation which is cavitating in her right upper lobe. What is the diagnosis?

A.Lung cancer

B.Tuberculosis

C.Pneumococcal pneumonia

D.Klebsiella pneumonia

E.Aspergillosis

Answer:Klebsiella pneumonia

Explanation:

Klebsiella most commonly causes a cavitating pneumonia in the upper lobes, mainly in diabetics and alcoholics

Important for meLess important

Klebsiella pneumonia is particularly associated with diabetic and alcoholic patients. It leads to a cavitating upper lobe pneumonia. Differentials for this lady would include lung cancer and tuberculosis but these would usually be associated with weight loss and travel to eastern Europe or Asia respectively.

Question:

A 16-month-old girl is brought to the children's emergency department by her parents who report loss of consciousness and seizure activity. Paramedics state that she was not seizing when they arrived. She has a temperature of 38.6ºC and has been unwell recently. Her other observations are normal. She has no known past medical history.

After investigations the child is diagnosed with a febrile convulsion.

What advice should you give her parents regarding this new diagnosis?

A.Call an ambulance only when a febrile convulsion lasts longer than 5 minutes

B.Call an ambulance only when a febrile convulsion lasts longer than 15 minutes

C.Call an ambulance when your child has a febrile convulsion

D.Febrile convulsions are not a risk factor for epilepsy

E.Regular paracetamol will reduce the risk of seizures

Answer:Call an ambulance only when a febrile convulsion lasts longer than 5 minutes

Explanation:

Parents should be advised to call an ambulance if a febrile convulsion lasts >5 minutes

Important for meLess important

The vast majority of febrile convulsions are short and do not cause any long-term damage. Parents should be advised to call an ambulance for any seizures lasting more than 5 minutes. This allows timely intervention if the child was to have a prolonged seizure (>10 minutes). Longer seizures mean there is a greater risk of harm to the child and also a greater risk of developing epilepsy later in life.

Waiting for 15 minutes would be too long and adds a degree of risk.

The current advice to parents is to place the child in the recovery position and to call an ambulance if the seizure lasts longer than 5 minutes. This is because the vast majority are short and self limiting. This is not to say that the parent can not seek advice from the GP and 111. If this is a child's first febrile convulsion then parent's are advised to call an ambulance. This is not the case.

Febrile convulsions are a risk factor for epilepsy. However, only 1-3% of children who have a febrile convulsion will go on to develop epilepsy. Other risk factors are a family history of febrile convulsions and background of neurodevelopmental disorder.

Regular antipyretics have not been shown to reduce the likelihood of febrile convulsions.

Question:

A 48-year-old caucasian male presents to his general practitioner for a routine check up. He is asymptomatic and has a past medical history of type two diabetes and hypercholesterolaemia. He is a non smoker, does not drink alcohol, and works as a teacher. Currently he takes metformin 500 mg tds, gliclazide 80 mg od, and simvastatin 40 mg on. Examination is normal, body mass index is 22 kg/m2, blood pressure is 140/78 mmHg and fundoscopy is normal. Urine dip shows protein 2+. Routine bloods show:

Hb 132 g/l Na+ 137 mmol/l

Platelets 204 \* 109/l K+ 4.6 mmol/l

WBC 5.6 \* 109/l Urea 5.7 mmol/l

Neuts 4.5 \* 109/l Creatinine 97 µmol/l

Lymphs 1.0 \* 109/l eGFR 62 mg/l

Eosin 0.04 \* 109/l HbA1c 47 mmol/mol

What management changes would you consider?

A.Amlodipine 5 mg once daily

B.Bendroflumethiazide 2.5 mg once daily

C.Increase gliclazide to 80 mg twice daily

D.Stop metformin

E.Ramipril 2.5 mg once daily

Answer:Ramipril 2.5 mg once daily

Explanation:

This gentleman has proteinuric stage 2 chronic kidney disease likely secondary to type 2 diabetes. He is currently asymptomatic and management is based on NICE targets for hypertension, chronic kidney disease and diabetes. NICE recommend a blood pressure target of <130/80 in patients with diabetes and chronic kidney disease with ACE inhibitors such as ramipril the preferred agents.

An HbA1c of 47 mmol/mol is within the target of 48 mmol/mol. Guidance is that metformin should be stopped when eGFR is less than 30 and used with caution when less than 45 mmol/mol.

http://www.nice.org.uk/guidance/cg182/chapter/1-recommendations

Question:

Which of the following is a potentially sensitising event in pregnancy and requires administration of anti-D in a RhD-negative woman?

A.Previously non-sensitised 11 week pregnant woman with first episode of painless vaginal bleeding

B.Previously non-sensitised 16 weeks pregnant woman undergoing amniocentesis

C.Previously sensitised 8 week pregnant woman with an ectopic pregnancy

D.Previously non-sensitised woman after delivery of a RhD-negative baby

E.Previously sensitised woman after delivery of a RhD-positive baby

Answer:Previously non-sensitised 16 weeks pregnant woman undergoing amniocentesis

Explanation:

Sensitisation is a process whereby fetal red blood cells (RhD-positive) enter the maternal circulation, where the mother is RhD-negative. The fetomaternal haemorrhage (FMH) can cause antibodies to form in the maternal circulation that can haemolyse fetal red blood cells.

The process of sensitisation usually affects subsequent pregnancies, if the fetus is RhD-positive. The immune response is much quicker and greater, resulting in complications such as haemolytic disease of the fetus and newborn.

The risk of sensitisation is reduced by administering anti-D immunoglobulin in situations where FMH is likely.

Anti-D works by neutralising RhD-antigens (from RhD-positive fetal red cells). However, if the woman is known to be sensitised already (antibodies present in her circulation), then this cannot be reversed and anti-D will not work. (Bloods are taken at booking and 28 weeks in RhD-negative woman to look for antibodies, showing previous sensitisation).

Potentially sensitising events in pregnancy:

- Ectopic pregnancy

- Evacuation of retained products of conception and molar pregnancy

- Vaginal bleeding < 12 weeks, only if painful, heavy or persistent

- Vaginal bleeding > 12 weeks

- Chorionic villus sampling and amniocentesis

- Antepartum haemorrhage

- Abdominal trauma

- External cephalic version

- Intra-uterine death

- Post-delivery (if baby is RhD-positive)

Prophylactic anti-D is given to previously non-sensitised RhD-negative woman at 28 and 34 weeks, to prevent against small FMH, in the absence of an observable sensitising event.

Source - RCOG. Rhesus D prophylaxis, the use of anti-D immunoglobulin.

Question:

A 45-year-old man comes to see you recent as his recent blood tests have shown a total cholesterol of 6.2 mmol/L. You ask him to come in so that you can discuss this further. You calculate his Q-risk score to be 23%.

He smokes 10 cigarettes a day and has been smoking for the past 20 years. His father died of a heart attack aged 50. His past medical history includes asthma.

Which one of the following medications would you ask him to start?

A.Atorvastatin 20mg

B.Atorvastatin 40mg

C.Atorvastatin 80mg

D.Simvastatin 10mg

E.Simvastatin 20mg

Answer:Atorvastatin 20mg

Explanation:

Atorvastatin 20mg is a high-intensity statin and should be started as primary prevention against cardiovascular disease. Atorvastatin 80mg is used in secondary prevention.

Simvastatin 10mg and 20mg are low-intensity statins.

Statin treatment should be combined with lifestyle measures such as increased physical activity, reduction of alcohol intake and adoption of a cardio-protective diet.

Question:

A 55-year-old man is admitted following a road traffic accident to the emergency department. He is complaining of dyspnoea and some chest discomfort. On examination his pulse is 120/min and blood pressure is 106/70 mmHg. An ECG is taken:

© Image used on license from Dr Smith, University of Minnesota

What is the most likely cause of his symptoms?

A.Pulmonary embolism

B.Ventricular tachycardia

C.Cardiac tamponade

D.Myocardial infarction

E.Pacemaker lead disruption

Answer:Cardiac tamponade

Explanation:

Electrical alternans is suggestive of cardiac tamponade

Important for meLess important

This ECG shows electrical alternans, which is considered pathognomic for cardiac tamponade. It is also sometimes seen in very large pericardial effusions. Note the alternation of QRS complex amplitude between beats.

Question:

You are urgently bleeped to the labour ward to see a 22-year-old woman who has recently undergone an artificial rupture of membranes. She is at 40-weeks gestation and has so far, had an uncomplicated pregnancy. The midwife informs you that the foetal heart rate is abnormal.

On examination, you can palpate the umbilical cord. You urgently request a caesarean section.

What drug can you administer whilst waiting to prevent complications?

A.Benzylpenicillin

B.Oxytocin

C.Pethidine

D.Terbutaline

E.Vaginal prostaglandins

Answer:Terbutaline

Explanation:

Tocolytics may be useful in umbilical cord prolapse to reduce uterine contractions

Important for meLess important

Terbutaline is correct. This patient is presenting with likely umbilical cord prolapse. An abnormal foetal heart rate and a palpable umbilical cord on examination are key findings in a patient with umbilical cord prolapse. This is evident as 50% of patients with an umbilical cord prolapse will have undergone artificial rupture of membranes. Therefore, terbutaline is correct as this is a form of tocolytic drug. This aims to reduce uterine contractions whilst awaiting emergency caesarean section.

Benzylpenicillin is incorrect. Benzylpenicillin is given to mothers intrapartum that have group B Streptococcus to reduce the incidence of neonatal sepsis. This is not relevant to this patient as she is presenting with an umbilical cord prolapse, not group B Streptococcus.

Oxytocin is incorrect. The aim whilst awaiting emergency caesarean section is to reduce uterine contractions and take the pressure off the umbilical cord to prevent compression. Tocolytics would reduce uterine contractions whereas oxytocin would increase them making this the wrong answer.

Pethidine is incorrect. This is an opioid analgesic used in labour. Although this patient would be offered analgesia, it is not the next step in the management of an umbilical cord prolapse.

Vaginal prostaglandins is incorrect. Vaginal prostaglandins are used to induce labour. For this patient, we would want to delay labour as much as possible so as not to further compress the umbilical cord. Therefore, this answer is incorrect.

Question:

An 86-year-old gentleman on the hepatobiliary ward has advanced pancreatic cancer. He wishes for his treatments to be stopped, and to be looked after by his daughter at home. His consultant asks the FY2 to conduct a capacity assessment, and he is deemed to have capacity relating to this decision.

Which of the following ways is most appropriate to ensure his wishes are met?

Complete 'Do not attempt cardiopulmonary resuscitation (DNACPR)' paperwork

12%

Repeat capacity assessment by psychiatrist

2%

Detain under the Mental Health Act (MHA) pending psychiatric review

0%

Complete 'advanced request for refusal of treatment' paperwork

81%

Enquire as to whether he has a lasting power of attorney (LPA)

5%

'Advanced requests for refusal of treatment' can be sought by patients who wish to refuse treatment. DNACPR refers specifically to advanced refusal of cardiopulmonary resuscitation

Important for meLess important

An advanced request for refusal of treatment is the most appropriate method fo ensuring the wishes of this patient are met. As he has capacity, this option acknowledges that he is of sound mind to make a decision - regardless of whether it is in his best interests or not.

A repeat capacity assessment would not be necessary, unless the circumstances surrounding the patient's ability to understand, retain, weigh up and communicate his decision regarding his treatment were suspected to have changed. It would be unnecessary to request a psychiatrist to conduct a capacity assessment - these can be performed by trained members of staff and not necessarily psychiatrists.

Detention under the MHA would be inappropriate as there are no grounds for its use. Similarly, exploring whether the patient has an LPA is not the single best step forward as the decisions made by LPAs can only be executed when a patient is considered to not have capacity - which is not the case for this patient.

DNACPR refers specifically and solely to the advanced refusal of cardiopulmonary resuscitation.

Question:

A 59-year-old man is brought into the emergency department with a 2-hour history of dizziness and palpitations. He denies chest pain or shortness of breath. His past medical history includes hypertension and stable angina.

His observations are as follows:

Temperature 36.7ºC

Heart rate 44bpm

Blood pressure 90/51mmHg

Respiratory rate 18 breaths/min

Oxygen saturations 94% on air

On examination, he has a regular pulse bilaterally. His calves are soft and non-tender. On auscultation, vesicular breath sounds are heard and heart sounds are normal.

ECG: sinus rhythm, PR interval 210ms (120-200ms).

What is the most appropriate next step in the management of this patient?

A.Intravenous adenosine

B.Intravenous atropine

C.Isoprenaline infusion

D.Transcutaneous pacing

E.Transvenous pacing

Answer:Intravenous atropine

Explanation:

Patients with bradycardia and signs of shock require 500micrograms of atropine (repeated up to max 3mg)

Important for meLess important

This patient is bradycardic and hypotensive. The ECG findings show a prolonged PR interval in keeping with first-degree heart block. In the management of bradycardia with adverse signs (e.g. shock or heart failure), atropine is used first-line. Atropine is a muscarinic antagonist that acts to increase the heart rate. It can be administered in 500 microgram boluses up to a maximum dose of 3mg. If atropine alone fails to control a patient's bradyarrhythmia, alternative options include isoprenaline infusions or transcutaneous pacing.

Intravenous adenosine is used in the treatment of supraventricular tachycardias (normally in the pattern of 6mg → 12mg → 12mg). Supraventricular tachycardias are narrow complex tachycardias with a heart rate usually well above 100bpm. In contrast, this patient is bradycardic which suggests this patient has a different diagnosis.

An isoprenaline infusion is indicated in the treatment of bradyarrhythmias, particularly if patients fail to respond to initial treatment with atropine. However, the first-line treatment is atropine which has not yet been tried, making atropine the correct answer.

Transcutaneous pacing is a method of taking control of pacing a patient's heart by placing pads on the patient's chest. It is indicated for the treatment of bradyarrhythmias without signs of shock (e.g. hypotension). However, it is an alternative treatment for managing bradycardia and is often only indicated following the failure of first-line options such as atropine.

Transvenous pacing involves inserting temporary pacing wires through an appropriate vein and passing them up to the right atrium of the heart. It is used as a means of controlling a patient with high-risk bradyarrhythmias (e.g. complete heart block, Mobitz type II), particularly when other methods have failed. However, transvenous pacing is not the most immediate treatment indicated for a patient with bradycardia and shock, unlike atropine.

Question:

A 73-year-old man is seen in the emergency department with shortness of breath.

He has recently had an elective left total hip replacement.

His d-dimer is raised and his CT pulmonary angiogram confirms the presence of a pulmonary embolism.

What is the most appropriate management?

A.Direct oral anticoagulant for 3 months

B.Direct oral anticoagulant for 6 months

C.Low molecular weight heparin for 3 months

D.Low molecular weight heparin for 6 months

E.Warfarin for 6 months

Answer:Direct oral anticoagulant for 3 months

Explanation:

Patients with a suspected pulmonary embolism should be initially managed with a direct oral anticoagulant (DOAC)

Important for meLess important

Direct oral anticoagulant for 3 months is correct. NICE updated its pulmonary embolism guidance in 2020 to recommend that pulmonary emboli are treated with a direct oral anticoagulant in the first instance. There is a clear provoking factor in the history so a 3-month duration is appropriate.

Direct oral anticoagulant for 6 months is incorrect. A 6-month duration of anticoagulation is only required if the pulmonary embolism is unprovoked.

Low molecular weight heparin for 3 months is incorrect. NICE updated its pulmonary embolism guidance in 2020 to recommend that pulmonary emboli are treated with a direct oral anticoagulant in the first instance.

Low molecular weight heparin for 6 months is incorrect as mentioned above, and also the duration of anticoagulation in this option is incorrect. There is a clear provoking factor in the history, so anticoagulation only needs to be continued for 3 months.

Warfarin for 6 months is incorrect. NICE recommends that pulmonary emboli are treated with a direct oral anticoagulant. In severe renal impairment or antiphospholipid syndrome, warfarin is still recommended.

Question:

A 45-year-old man with poorly treated tertiary syphilis is being screened for complications of neurosyphilis. On questioning, he reports a right-sided loss of visual acuity and decreased colour vision. He denies any headaches or changes to vision with coughing.

On examination, there is no evidence of eye movement abnormalities or gaze abnormality. He does have a relative afferent pupillary defect and fundoscopy shows right-sided optic disc swelling.

Given the likely diagnosis, what other visual abnormality may be expected?

A.Central scotoma

B.Flashes and floaters

C.Haloes

D.Homonymous hemianopia

E.Leukocoria

Answer:Central scotoma

Explanation:

A central scotoma is a feature of optic neuritis

Important for meLess important

Tertiary syphilis is fortunately very rare, but the neurosyphilis complications represent classical findings. There may be many forms of ocular involvement, with the most common being uveitis. However, this man presents with a form of optic neuritis, called optic papillitis.

The fundoscopy here may suggest papilloedema, however, this is more likely to be bilateral, associated with vision changes when coughing (due to raised intracranial pressure) and not likely associated with prominent visual abnormalities. Papilloedema may present with abducens nerve palsy and esotropia, which is absent here as stated in the examination findings.

Central scotoma is the other key finding within optic neuritis - it presents as a grey, black or blind spot in the middle of the visual field. It is due to a lesion between the optic nerve head and the chiasm.

Flashers and floaters are incorrect. They are visual disturbances that arise from abnormalities in the vitreous humour. Floaters are due to pieces of debris floating around in the vitreous, whilst flashers are when these pieces of debris get irritated or stretched suddenly. This doesn't relate to the optic nerve, and so won't be present in optic neuritis.

Haloes are incorrect. They are rainbow-like coloured rings around lights, which is due to extra or more opaque fluid in the eye, such as in glaucoma or cataracts. This causes light to diffract differently, hence the rainbow appearance. It is not due to the optic nerve, and so won't be present because of optic neuritis.

Homonymous hemianopia is incorrect. It is a visual field defect that arises from the optic tract, which is after the optic chiasm. As optic neuritis affects the nerve before the optic chiasm, it is not typically found in the condition.

Leukocoria is incorrect. It refers to the appearance of whitening of the eye and loss of red reflex. It is due to changes in the anterior chamber and is not related to the optic nerve.

Question:

A 60-year-old man attends his annual type 2 diabetes mellitus review, where he is found to have an HbA1c as below.

HbA1c 58 mmol/mol

Currently, his only medication is metformin 1g twice daily, with which he is fully compliant. He takes no other medications and has no allergies. Five years ago, he had a transurethral resection for bladder cancer. He remains under urology follow-up with no evidence of disease recurrence. There is no other medical history. His BMI is 25kg/m², he exercises regularly and eats a healthy diet.

What is the most appropriate next step?

A.Add empagliflozin

B.Add gliclazide

C.Add liraglutide

D.Add pioglitazone

E.Switch to modified-release metformin

Answer:Add gliclazide

Explanation:

T2DM on metformin, if HbA1c has risen to 58 mmol/mol then one of the following should be offered depending on the individual clinical scenario:

DPP-4 inhibitor

pioglitazone

sulfonylurea

SGLT-2 inhibitor (if NICE criteria met)

Important for meLess important

Gliclazide is the most appropriate choice for this patient given NICE guidelines and the patient's clinical factors. Despite good adherence to metformin and lifestyle factors, this patient's HbA1c has now risen to 58 mmol/mol. NICE recommends that, once HbA1c is 58 mmol/mol or over on metformin, a second antidiabetic agent is considered. Dual therapy is recommended with the addition of either a sulfonylurea, a DPP-4 inhibitor ('gliptins') or pioglitazone. Of the listed drugs, only pioglitazone or gliclazide (a sulfonylurea) are NICE-recommended additional agents. As this patient has a history of bladder cancer, pioglitazone is inappropriate. This leaves gliclazide as the most appropriate choice.

Empagliflozin, an SGLT-2 inhibitor, may be added to metformin as dual therapy if: a sulfonylurea is contraindicated or not tolerated, or if the person is at significant risk of hypoglycaemia or its consequences. There is nothing in this brief to suggest that this is the case. SGLT-2 inhibitors may also be added in patients with proven cardiovascular disease as they have a cardioprotective effect. However, again, this is not relevant to this patient.

Liraglutide is a glucagon-like peptide-1 (GLP-1) receptor agonist that activates GLP-1 receptors to increase insulin secretion, suppress glucagon secretion and slow gastric emptying. A GLP-1 receptor agonist would not be appropriate in this case, as they are only considered if a combination of metformin and two other anti-diabetic drugs has not worked. Furthermore, they are reserved in these cases for patients who either have a BMI > 35kg/m² and complications associated with obesity, or patients who do not meet the BMI criteria but for whom insulin therapy would have significant occupational implications. This man, therefore, does not meet the criteria for liraglutide.

Pioglitazone is a thiazolidinedione that lowers blood glucose by reducing peripheral insulin resistance. Pioglitazone is another drug that NICE recommends may be added to metformin if HbA1c rises to 58 mmol/mol. However, as above, the exact choice of a second anti-diabetic agent depends on the individual clinical scenario. Pioglitazone is known to increase the risk of bladder cancer, and so must not be used in patients with current or past bladder cancer (as in this patient) or with unexplained macroscopic haematuria. It can also increase the risk of heart failure, and so is contraindicated in patients with heart failure.

Modified-release metformin is advised by NICE as an alternative to standard-release metformin if the patient develops intolerable gastrointestinal effects. Switching to modified-release metformin is not done to improve HbA1c control, and therefore is not the correct option in this case.

Question:

A patient presents to her general practitioner complaining of 6-months of net-like mottled skin on her hands, lower arms, feet and calves. She reports no other symptoms of note.

Routine bloods, including full-blood count (FBC) and a coagulation screen are performed, and results are as follows:

Haemoglobin 140 g/l

Platelets 98 \* 109/L

White cell count 8 \* 109/L

Activated partial thromboplastin time (APTT) 45s

Prothrombin Time (PT) 12s

An autoantibody screen is also performed and the significant results shown below:

Anti-cardiolipin antibodies Positive

Lupus anticoagulant Positive

Anti-dsDNA Negative

Based on the most likely diagnosis, what treatment option is most appropriate?

A.Daily low-dose aspirin

B.Daily nifedipine

C.Lifelong low-molecular weight heparin (LMWH)

D.Lifelong warfarin

E.6-months of warfarin

Answer:Daily low-dose aspirin

Explanation:

Patients with anti-phospholipid syndrome who haven't had a thrombosis previously are generally on low-dose aspirin

Important for meLess important

The presentation and blood results in this scenario point to a diagnosis of anti-phospholipid syndrome. Anti-phospholipid syndrome presents with CLOTS: clots, livedo reticularis, obstetric complications and thrombocytopenia. Livedo reticularis is a net-like mottling of the skin that occurs in this condition. This condition can be diagnosed by blood tests showing thrombocytopenia and a paradoxically prolonged APTT, as well as positive anti-phospholipid antibodies. These antibodies include anti-cardiolipin, anti-beta-2-glycoprotein-1 antibodies and lupus anti-coagulant. Patients who are diagnosed with anti-phospholipid syndrome and have never experienced a venous or arterial thrombosis should be treated with prophylactic low-dose aspirin.

Daily nifedipine is the treatment of choice for Raynaud's phenomena, whereby finger and toes can turn pale and painful in cold temperatures. It can occur as a primary condition or secondary to other conditions, including auto-immune haemolytic anaemia and systemic lupus erythematous.

Life-long LMWH would not be recommended in this case. Life-long anticoagulation is recommended for anti-phospholipid syndrome patients who experience a venous or arterial thrombosis. However, warfarin is currently the anti-coagulant of choice. LMWH can be an option in pregnancy.

Lifelong warfarin would be the recommended long-term treatment in a patient with anti-phospholipid syndrome who had experienced a previous thrombotic event.

6-months of warfarin is currently the recommended treatment of choice in patients (with no contraindications) following an unprovoked deep vein thrombosis (DVT).

Question:

A 72-year-old woman with ovarian cancer is seen in the gynaecological oncology clinic. There, the consultant talks through her pre-surgical prognosis, based on her risk malignancy index (RMI). What are the three components of the RMI?

A.Age, CA125, ultrasound (US) findings

B.Age, number of children, ultrasound (US) findings

C.CA125, co-morbidities, menopausal status

D.CA125, co-morbidities, ultrasound (US) findings

E.CA125, menopausal status, ultrasound (US) findings

Answer:CA125, menopausal status, ultrasound (US) findings

Explanation:

Risk malignancy index (RMI) prognosis in ovarian cancer is based on US findings, menopausal status and CA125 levels

Important for meLess important

The RMI is the pre-surgical prognostic criteria recommended by NICE, and is based on CA125 levels, menopausal status, and ultrasound score. Age, co-morbidities, and number of children are not part of the criteria.

Question:

You and your consultant are reviewing a CT head of an elderly patient who presented to the emergency department with reduced consciousness after a fall, hitting the side of their head. Your consultant describes a unilateral crescentic lesion in the right frontoparietal area.

What vessel has most likely been damaged?

A.Middle meningeal artery

B.Bridging vein

C.Anterior circulating artery

D.Internal cerebral veins

E.Basilar artery

Answer:Bridging vein

Explanation:

Subdural haemorrhage results from bleeding of damaged bridging veins between the cortex and venous sinuses

Important for meLess important

Subdural haemorrhage is the most likely cause of reduced consciousness in this case. It is caused by damage to bridging veins between the cortex and venous sinuses. On CT it classically presents as a crescent shaped lesion, and as they occur in the subdural space, cross sutures.

Epidural haemorrhage is associated with the middle meningeal artery

Subarachnoid haemorrhages are associated with vessels of the circle of Willis, such as basilar and anterior circulating arteries.

Question:

A 64-year-old man is reviewed on the ward round, 3 days after a radical cystectomy and ileal conduit formation surgery for bladder cancer. The patient reports abdominal bloating and 2 episodes of vomiting. On examination, the patient's abdomen is distended, with no flank bruising seen. Wound dressings are dry. Drain output is moderate and the stoma looks healthy with good urine output. Observations are normal.

Hb 138 g/L Male: (135-180)

Female: (115 - 160)

Platelets 380 \* 109/L (150 - 400)

WBC 18.9 \* 109/L (4.0 - 11.0)

CRP 122 mg/L (< 5)

What is the most likely diagnosis?

A.Anastomotic leak

B.Bladder distension

C.Ileus

D.Retroperitoneal haemorrhage

E.Surgical site infection

Answer:Ileus

Explanation:

Abdominal pain, bloating and vomiting following bowel surgery → ?postoperative ileus

Important for meLess important

This scenario describes a 64-year-old man presenting with abdominal bloating and vomiting following a recent radical cystectomy and ileal conduit formation surgery. Given the above, the most likely diagnosis is post-operative ileus. This is a complication of surgery on the bowel in which there is a temporary reduction in intestinal muscle activity, resulting in stasis. It can present with not opening bowels, not passing flatus and vomiting. The patient's blood tests show raised white cells and CRP which is to be expected following surgery.

Anastomotic leak is an important differential to consider. An anastomotic leak may present with severe abdominal pain, pyrexia, and sepsis. Whilst the stem includes raised white cells and CRP, these are common following surgery. Importantly, the abdomen is distended and clinical observations are documented as normal and therefore anastomotic leak is less likely than ileus.

Bladder distension is incorrect as this patient has undergone a radical cystectomy.

Retroperitoneal haemorrhage is an important postoperative complication to consider. It may present with abdominal pain, reduced haemoglobin, and bruising on the abdomen (such as flank bruising). This is not described in this scenario.

Surgical site infection is not the single best answer. Surgical site infection can present with wet dressings, erythema, swelling, warmth, bleeding, pain, and discharge around the surgical wounds. This is not described in this scenario.

Question:

Harold, 75, has a known sigmoid colon tumour that was graded as T3N0M0. Surgeons recommended surgery as the first line treatment for this and it was scheduled for next week. However, he has just been brought to the emergency department with intense abdominal pain, which was found to be due to a perforation. Which of the following operations is most appropriate for Harold?

A.Left hemicolectomy

B.Low anterior resection

C.Total colectomy

D.Hartmann's procedure

E.Abdominoperineal resection

Answer:Hartmann's procedure

Explanation:

A Hartmann's procedure would be the most preferable surgery for the patient in this scenario. The important pieces of information to consider when answering this question are the urgency of the operation and the location of the malignancy. This patient has presented to hospital as an emergency perforation, resulting from his malignancy. Therefore, the surgery for this patient needs to be appropriate for an emergency situation. Under routine circumstances, this patient would receive surgery that would consist of resection of the relevant section of bowel and then anastomosis of the two ends. However, in emergency situations anastomosis is not a preferable surgical option.

Hartmann's procedure involves resection of the relevant portion of bowel and formation of an end colostomy/ileostomy. In the future patients can undergo a reversal of Hartmann's procedure, whereby the end colostomy is closed following the formation of a colorectal anastomosis, restoring continuity of the bowels. This makes it the ideal surgical procedure for emergency situations. Furthermore, this operation involves resection of the sigmoid colon, where this patients tumour is located.

Abdominoperineal resections and low anterior resections are used to treat rectal malignancies, and are therefore inappropriate responses to this question. A total colectomy is not required in this patient, as it is only the sigmoid colon that is affected, meaning removal of the entire colon is an out of proportion response to the problem. A left hemicolectomy, could at first glance, appear a correct answer. However, the emergency of the patients situation dictates that anastomosis formation is not advisable, meaning a Hartmann's procedure is more appropriate, and the correct answer for this scenario.

Question:

During a routine cranial nerve examination the following findings are observed:

Rinne's test: Air conduction > bone conduction in both ears

Weber's test: Localises to the right side

What do these tests imply?

A.Left conductive deafness

B.Normal hearing

C.Right conductive deafness

D.Right sensorineural deafness

E.Left sensorineural deafness

Answer:Left sensorineural deafness

Explanation:

In Weber's test if there is a sensorineural problem the sound is localised to the unaffected side (right) indicating a problem on the left side

Question:

A 35-year-old woman is seen in clinic with a 7-month history of progressive unilateral hearing loss. During this time, she has had intermittent episodes of room spinning and tinnitus in the affected ear. She has no past medical history.

An MRI is arranged which shows the following:

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What site is most likely to be affected?

A.Left cerebellopontine angle

B.Left internal acoustic meatus

C.Right cerebellopontine angle

D.Right cerebellum

E.Right internal acoustic meatus

Answer:Right cerebellopontine angle

Explanation:

Right cerebellopontine angle is correct. The image is an axial view of the patient's brain. To the left of the centre of the image, a vaguely round white lesion can be seen where the cerebellum and pons meet (the cerebellopontine angle), suggesting the presence of a mass. The MRI, alongside the history of progressive hearing loss, episodic tinnitus and vertigo suggest a diagnosis of a vestibular schwannoma (also known as acoustic neuroma), which is a benign tumour of Schwann cells around the vestibulocochlear nerve that tends to occupy the cerebellopontine angle. CT and MRI scans are generally viewed as if looking from the feet up, therefore, the left and right sides in the image are flipped in the patient (i.e. the right side of the image is the patient's left side and vice versa).

Left cerebellopontine angle is incorrect. Although the cerebellopontine angle is affected as mentioned above, the lesion is on the right side of the patient, not the left, as the image views the patient from the feet up, which inverts the side affected in the patient and the side seen on the image. If this were a left-sided mass, it would be on the right side of the image.

Left internal acoustic meatus is incorrect. The mass seen in the image is at the junction of the pons and cerebellum, known as the cerebellopontine angle. It is also on the right, not the left, as the left and right sides of the image are flipped in the patient as the image is viewing the patient from the feet up. The internal acoustic meatus is more lateral to the affected site. A mass at this site is associated with facial nerve palsy and facial weakness, which are not seen here.

Right internal acoustic meatus is incorrect. Although this is the correct side, the mass is at the cerebellopontine angle, not the internal acoustic meatus, which is more lateral. A mass at the internal acoustic meatus would cause facial weakness and features suggesting facial nerve palsy, which is not seen here.

Right cerebellum is incorrect. The mass in the image shown is in front of the cerebellum at its junction with the pons, known as the cerebellopontine angle. It is not within the cerebellar tissue itself.

Question:

A 43-year-old woman with multiple sclerosis presents for review. She is having increasing problems with painful involuntary contractions of the leg muscles. What is the most appropriate first-line therapy?

A.Referral for relaxation therapy

B.Baclofen

C.Diazepam

D.Dantrolene

E.Natalizumab

Answer:Baclofen

Explanation:

Baclofen and gabapentin are first-line for spasticity in multiple sclerosis

Important for meLess important

Question:

A 71-year-old man presents with two year history of intermittent problems with swallowing. His wife has also noticed he has halitosis and is coughing at night. He has a past medical history of type 2 diabetes mellitus but states he is otherwise well. Of note his weight is stable and he has a good appetite. Clinical examination is unremarkable. What is the most likely diagnosis?

A.Oesophageal cancer

B.Hiatus hernia

C.Pharyngeal pouch

D.Oesophageal candidiasis

E.Benign oesophageal stricture

Answer:Pharyngeal pouch

Explanation:

Given the two year history and good health oesophageal cancer is much less likely

Question:

A 42-year-old woman presents to the emergency department complaining of shortness of breath and chest pain. A CT pulmonary angiogram is requested however before this can be completed, the patient arrests. The rhythm check shows organised electrical activity but there is no pulse. The arrest team start cardiopulmonary resuscitation (CPR) and 1mg adrenaline is given intravenously.

What stage should adrenaline next be given?

A.After every shock

B.Every 3-5 minutes

C.Every rhythm check

D.One further dose at 10 minutes

E.One further dose at 5 minutes

Answer:Every 3-5 minutes

Explanation:

In ALS, once adrenaline has been initially given it should be repeated every 3-5 minutes whilst ALS continues

Important for meLess important

In the advanced life support algorithm, adrenaline is given after the third shock (shockable rhythm) or as soon as possible (non-shockable). For both rhythms, it is then repeated every 3-5 minutes.

After every shock is incorrect. In a shockable rhythm, it is given every 3-5 minutes which equates to after every other shock. This is a non-shockable rhythm so no shocks would be given unless the rhythm changed.

Every rhythm check is incorrect. 3-5 minutes equates to after every other rhythm check in practice.

One further dose at 10 minutes is incorrect. The dose is repeated every 3-5 minutes.

One further dose at 5 minutes is incorrect; this describes the dosing regimen for adrenaline in anaphylaxis.

Question:

A 65-year-old gentleman with a history of chronic obstructive pulmonary disease (COPD) presents with progressively worsening shortness of breath and a productive cough. He describes an increase in sputum production with the sputum colour changing from clear to yellow. His arterial blood gas (ABG) results are as follows;

Normal range

pH: 7.22 (7.35 - 7.45)

pO2: 7.4 (10 - 14)kPa

pCO2: 8.6 (4.5 - 6.0)kPa

HCO3: 30 (22 - 26)mmol/l

BE: +5 (-2 to +2)mmol/l

Based on this information provided, what does his arterial blood gas show?

A.Type 2 respiratory failure, acute on chronic respiratory acidosis

B.Type 1 respiratory failure, acute on chronic respiratory acidosis

C.Metabolic acidosis with partial respiratory compensation

D.Metabolic alkalosis with partial respiratory compensation

E.Acute respiratory acidosis with complete metabolic compensation

Answer:Type 2 respiratory failure, acute on chronic respiratory acidosis

Explanation:

This patient has Type 2 respiratory failure.

Remember!

Type 1 respiratory failure: Low pO2, no CO2 retention

Type 2 respiratory failure: Low pO2, high pCO2

We can observe that the HCO3 is raised in this patient despite the abnormal pH. Given the above history, it is likely to represent an acute on chronic respiratory acidosis. Note he has a history of COPD. This suggests that the patient normally retains CO2 and has a chronically raised HCO3. The low pH represents the normal compensatory mechanisms becoming overwhelmed. This is an example of a case where it may prove useful comparing an old ABG from a previous admission. The old ABG may provide useful baseline readings.

Question:

A 12-year-old girl develops facial swelling and an erythematous itchy rash shortly after being administered the first dose of the HPV vaccine. On arrival the paramedics note a bilateral expiratory wheeze and blood pressure of 80/50 mmHg. In the Gell and Coombs classification of hypersensitivity reactions this is an example of a:

A.Type I reaction

B.Type II reaction

C.Type III reaction

D.Type IV reaction

E.Type V reaction

Answer:Type I reaction

Explanation:

Type I hypersensitivity reaction - anaphylaxis

Important for meLess important

Question:

A 26-year-old is seen by the on-call psychiatry team at a police station after being brought there as a place of safety following a breakdown in a local supermarket. The patient was attempting to steal alcohol and was caught by the shop security after which they had a panic attack and police were called.

On further questioning they explain they were trying to steal 'because they can' and they have done so many times before. They do not see why they should obey the rules of society if they do not want to. When questioned about their childhood, they state they enjoyed hurting their younger siblings when in their teens and when they were 14 they report having killed the family pet and burying it in a local park to hide the evidence. They report self-harming in the past but there are no scars as evidence of this now.

Which of the following features would be more suggestive of an underlying diagnosis of antisocial personality disorder over borderline personality disorder?

A.The presence of psychotic symptoms

B.Concurrently elevated mood

C.Concurrently low mood

D.Female gender

E.Male gender

Answer:Male gender

Explanation:

Antisocial personality disorders more often affects men

Important for meLess important

Antisocial personality disorder more often affects men than it does women, whereas young women are more likely diagnosed with borderline personality disorder than men.

The features of the two can often overlap with both having impulsivity as a key feature. The important features of borderline personality disorder are an unstable affect with fluctuating self image and recurrent suicidal ideation and self harm. The more important features of antisocial personality disorder are repeated failure to conform to social norms or rules and reckless disregard for their own safety as well as others with a lack of sense of remorse when these actions are discussed.

The presence of a persistent mood alteration or psychotic symptoms would go against the primary diagnosis being a personality disorder.

Question:

While working on a gynaecology ward you are looking after a 67-year-old female who has had an endometrial biopsy for post-menopausal bleeding. Which of the following ovarian tumours is associated with the development of endometrial hyperplasia?

A.Thecomas

B.Sertoli cell tumours

C.Fibromas

D.Teratomas

E.Granulosa cell tumours

Answer:Granulosa cell tumours

Explanation:

Atyplical hyperplasia of the endometrium is classified as a premalignant condition

Important for meLess important

Atypical hyperplasia of the endometrium is classified as a premalignant condition which develops due to overstimulation of the endometrium by oestrogen. Sex cord stromal tumours (Thecomas, Fibromas, Sertoli cell and granulosa cell tumours) are associated with an increased production of hormones. The sub-type Granulosa cell tumours are associated with the development of endometrial hyperplasia. The other three are not.

Teratomas are a germ cell tumour which is not linked to unopposed oestrogen stimulation and thus endometrial hyperplasia.

Question:

A 35-year-old woman sees her GP as she has occasional mild pain associated with pins and needles in her thumb and index finger. The pain is not always there and it typically occurs if she is flexing her wrist or accidentally hits it. This has been occurring for the past few weeks despite taking over the counter pain relief and she is concerned it is not going away as it is affecting her ability to work as a typist.

What is the most appropriate first-line management for this patient?

A.Corticosteroid injection

B.No intervention needed

C.Non-steroidal anti-inflammatory drugs (NSAIDs)

D.Refer for surgical decompression

E.Wrist splinting

Answer:Wrist splinting

Explanation:

Carpal tunnel syndrome: a trial of conservative treatment (wrist splint +/- steroid injection) should be tried initially for patients with mild-moderate symptoms

Important for meLess important

This patient has classical symptoms of carpal tunnel syndrome. As pressure is placed on the median nerve, pain develops in the wrist and in the territory of the median nerve (thumb, index and middle finger) along with paraesthesia. This is typically exacerbated by flexing the wrist (Phalen's sign) or by tapping on the wrist.

The correct answer in this case is wrist splinting. This pain has been ongoing for a few weeks, even with pain relief, so further treatment is indicated. In cases of mild-moderate symptoms, NICE recommend a trial of conservative management. This is the first-line option offered to patients; should this prove ineffective after 4-6 weeks, it may be used alongside a corticosteroid injection. The wrist splint aims to immobilise the wrist and relieve the pressure on the median nerve.

Corticosteroid injections can play a role in the management of carpal tunnel, alongside a wrist splint. The injection aims to reduce any swelling in the carpal tunnel that might be pressing on the nerve. It is not the first-line option in this case, as there are conservative non-invasive treatment options that may work before corticosteroid injections are required.

Non-steroidal anti-inflammatory drugs (NSAIDs) can be taken for pain relief, but they will not actually treat the patient's condition. In this scenario, the patient has also been taking over the counter pain relief without much success.

Refer for surgical decompression is not the correct answer. Surgical decompression should be considered if symptoms are severe or persist despite conservative treatment. It would be inappropriate to operate without attempting to resolve the symptoms without surgery.

Question:

A 52 years old man comes to the neurology clinic with his son after a referral from the GP's clinic. He complains of urine incontinence for one month. His son also noticed that his father has been forgetful lately— there is no history of trauma or falls. The patient does not have early morning headaches.

On physical examination, the patient could not raise his foot while walking; he shuffled his feet instead. He has normal sensation in his upper and lower limbs bilaterally.

What is the most probable MRI finding?

A.Brain atrophy

B.Brain mass

C.Crescent-shaped hyperintensity

D.Hyperintense lesions

E.Ventriculomegaly without sulcal enlargement

Answer:Ventriculomegaly without sulcal enlargement

Explanation:

Normal pressure hydrocephalus neuroimaging findings: ventriculomegaly in the absence of, or out of proportion to, sulcal enlargement

Important for meLess important

Ventriculomegaly without sulcal enlargement is the correct answer. It is the MRI finding of normal pressure hydrocephalus (NPH). NPH refers to a condition of pathologically enlarged ventricular size with normal opening pressures on lumbar puncture. NPH is characterized by the triad of urinary incontinence, gait disturbance, and dementia. Magnetic gait, shuffling the feet to the floor while walking, is a specific finding of NPH. The hallmark finding of NPH on MRI is ventriculomegaly in the absence of, or out of proportion to, sulcal enlargement.

Brain atrophy is an incorrect answer. Brain atrophy is seen in Alzheimer's disease patients. Although the patient has dementia, it is considered pseudodementia. This means that dementia resolves after treating NPH. Furthermore, Alzheimer's disease commonly presents at a later age.

Brain mass is an incorrect answer. This is because a brain mass on MRI would commonly indicate a brain tumour. Brain tumours would cause symptoms according to the location it sits. Moreover, the patients would suffer from symptoms of elevated ICP like early morning headaches and vomiting. In addition to the mass effect, masses could cause a midline shift that affects cranial nerves' function, especially the oculomotor nerve.

Crescent-shaped hyperintensity is an incorrect answer. Crescent-shaped hyperintensity is the FLAIR (fluid attenuated inversion recovery, a special sequence used in MRI imaging used to detect subtle changes of the hemispheres and in the periventricular region close to CSF) MRI finding of chronic subdural haematoma. Subdural haematoma is caused by the tearing or stretching of bridging veins that cross the subdural space. Subsequently, blood accumulates in the space between the dura mater and the arachnoid mater. Although chronic subdural haematoma may not be associated with trauma, it presents as sudden-onset confusion, personality changes, and focal neurological deficits.

Hyperintense lesions is an incorrect answer. Hyperintense lesions are the FLAIR MRI finding of ischaemic stroke. Patients with stroke would present with sudden onset neurological deficit that depends on the location of the infarction. They may present with motor, sensory, or memory deficits, but the constellation of shuffling gait, urinary incontinence, dementia, and lack of sensory symptoms increase the suspicion of NPH.

Question:

A 53-year-old woman presents to the general practitioner with a 1-year history of worsening erythematous rash on the nose, forehead and cheeks associated with telangiectasia and papules. The rash is aggravation by sun exposure and hot and spicy food. She has previously sought medical help for this condition before, and despite treatment with topical metronidazole, her symptoms remain uncontrolled. She is otherwise well with no allergies.

Which of the following management options would be most appropriate for this patient?

A.Oral clarithromycin

B.Oral doxycycline + topical ivermectin

C.Oral erythromycin

D.Oral flucloxacillin

E.Topical erythromycin

Answer:Oral doxycycline + topical ivermectin

Explanation:

Rosacea: a combination of topical ivermectin + oral doxycycline is first-line for patients with severe papules and/or pustules

Important for meLess important

This patient presents with an erythematous rash on the nose, forehead and cheeks associated with telangiectasia and papules, which is aggravation by sun exposure and hot and spicy food. This, in combination with her age, makes a diagnosis of rosacea most likely. First-line management of this condition is with topical ivermectin, but oral doxycycline + topical ivermectin should be given as this has proved ineffective.

Oral clarithromycin is incorrect. This is a macrolide that may be used for various dermatological problems such as infected diabetic foot and leg ulcer infections. It is not commonly used in the management of acne rosacea.

Oral erythromycin is a macrolide generally used in patients who are intolerant to tetracyclines as well as in pregnant women in whom tetracyclines are contraindicated (causes teeth discolouration of the foetus).

Oral flucloxacillin is incorrect. This is typically used for skin infections such as impetigo and cellulitis.

Topical erythromycin is incorrect. If used for rosacea, erythromycin is typically given orally.

Question:

A 71-year-old woman with a background of type II diabetes and chronic kidney disease (CKD) is reviewed by her GP. Her recent blood tests have shown that her haemoglobin level and estimated glomerular filtration rate (eGFR) has fallen gradually over the last year. Her blood tests can be found below.

Hb 94g/L Male: (135-180)

Female: (115 - 160)

Platelets 268\* 109/L (150 - 400)

WBC 5.1\* 109/L (4.0 - 11.0)

MCV 76 (80-100fL)

Na+ 139mmol/L (135 - 145)

K+ 3.9mmol/L (3.5 - 5.0)

Urea 5.9mmol/L (2.0 - 7.0)

Creatinine 118µmol/L (55 - 120)

eGFR 31ml/min/1.73m2 (>89ml/min/1.73m2)

What would be the next appropriate management in view of her background of CKD?

A.Check iron status

B.Refer for blood transfusion

C.Refer for dialysis

D.Refer to commence erythropoietin (EPO)

E.Urgently refer to the renal team

Answer:Check iron status

Explanation:

In a patient with suspected anaemia of chronic disease secondary to CKD, iron status should be checked prior to commencing EPO

Important for meLess important

If anaemia is present, arrange tests to exclude other causes of anaemia. Iron deficiency should be done first before considering then need to refer for erythropoietin (EPO). Renal anaemia should only be diagnosed after exclusion of other causes including iron deficiency, folate or B12 deficiency, haemolysis. Renal anaemia is unusual prior to CKD3b but if suspected, nephrology advice would be appropriate.

Referring for a blood transfusion won't be necessary at this point since we have not excluded other causes for this low Hb. It is also usually not given until the patient's haemoglobin count falls below 70g/l in a stable scenario where there is no acute haemorrhage or rapid correction of anaemia required.

Referral for dialysis is not appropriate at this point and is not indicated for the treatment of anaemia.

Referral to commence EPO can be considered once other causes are excluded e.g. iron-deficiency anaemia as per NICE guidance.

This scenario can be managed initially in a primary care setting and an urgent referral to the renal team won't be necessary at this point.

Question:

A 72-year-old man who is being treated for Parkinson's disease is reviewed. Which one of the following features should prompt you to consider an alternative diagnosis?

A.Micrographia

B.Impaired olfaction

C.REM sleep behaviour disorder

D.Diplopia

E.Psychosis

Answer:Diplopia

Explanation:

Diplopia is not common in Parkinson's disease and may suggest an alternative cause of parkinsonism such as progressive supranuclear palsy

Question:

A 32-year-old man has a 5-month history of cough, fever, and unexpected weight loss. A sputum culture is positive for acid-fast bacilli. He is given a drug regimen including a 6-month course of isoniazid and rifampicin, alongside ethambutol and pyrazinamide for the first 2 months. The patient has also been prescribed pyridoxine.

What complication may be prevented by the co-prescription of pyridoxine?

A.Gastrointestinal upset

B.Hepatotoxicity

C.Nephrotoxicity

D.Optic neuritis

E.Peripheral neuropathy

Answer:Peripheral neuropathy

Explanation:

The risk of peripheral neuropathy with isoniazid can be reduced by prescribing pyridoxine

Important for meLess important

Peripheral neuropathy is correct. The patient's features and the presence of acid-fast bacilli in their sputum confirm a diagnosis of tuberculosis. Pyridoxine should be co-prescribed to all patients commencing isoniazid in order to reduce the risk of peripheral neuropathy. The risk of peripheral neuropathy is highest in patients with comorbidities including diabetes, malnutrition, or HIV.

Gastrointestinal upset is incorrect. This would not be improved or prevented by the co-prescription of pyridoxine.

Hepatotoxicity is incorrect. This is a complication of isoniazid therapy, and would not be improved or prevented by the co-prescription of pyridoxine.

Nephrotoxicity is incorrect. This is not classically associated with tuberculosis pharmacotherapy. Pyridoxine does not play a role in the prevention of nephrotoxicity in the treatment of tuberculosis.

Optic neuritis is incorrect. This is a complication of ethambutol and would not be improved or prevented by the co-prescription of pyridoxine.

Question:

A woman who is 39 weeks pregnant has come in to hospital in labour. The midwife notices she has a temperature of 38.5ºC, and so suggests that the woman should get some antibiotic treatment. The woman has no drug allergies, and has has a normal and uneventful pregnancy so far. Which of the following should the woman get as Group B Streptococcus prophylaxis?

A.Amoxicillin

B.Benzylpenicillin

C.Erythromycin

D.Tazocin and Gentamicin

E.Vancomycin

Answer:Benzylpenicillin

Explanation:

Women with pyrexia >38 degrees during labour should get benzylpenicillin as GBS prophylaxis

Important for meLess important

Royal college guidelines state woman with pyrexia during labour should receive GBS prophylaxis, which is benzylpenicillin. Vancomycin should be used if there is a known severe penicillin allergy. Erythromycin is used in woman with preterm prelabour rupture of membranes (PPROM).

Question:

A 26-year-old man presented with pain in his left knee, dysuria and painful right eye. He returned from a trip to Thailand a month ago, during which he engaged in unprotected sexual intercourse. On examination, there was a painful, slightly swollen left knee with a reduced range of movements. The right conjunctiva was injected. Respiratory rate was 18/min, heart rate 78bpm, the temperature was 37.6 ºC.

Joint aspiration was done with synovial fluid analysis as follows:

Appearance turbid

White cell count 35,000 cells/mm3 (<200)

Polymorphonuclear cells 65% (<30%)

Culture negative

What is the most likely diagnosis?

A.Gonococcal arthritis

B.Gout

C.Reactive arthritis

D.Rheumatoid arthritis

E.Septic arthritis

Answer:Reactive arthritis

Explanation:

Reactive arthritis: develops after an infection where the organism cannot be recovered from the joint

Important for meLess important

The patient can't see, can't pee, can't climb a tree.

The triad of arthritis, urethritis and conjunctivitis in a patient with recent travel history is highly suspicious of reactive arthritis. Reactive arthritis can occur after a sexually transmitted disease, where the most likely causative organism is Chlamydia trachomatis. However, the synovial fluid culture is negative as the organism is not recovered from the joint.

Gonococcal arthritis is caused by disseminated gonococcal infection. Patients classically present with arthritis-dermatitis syndrome, and go on to develop septic arthritis if untreated. It is a good differential for young, sexually active males with mono- or oligoarthritis, however, it would not explain the other presenting complaints of dysuria and painful eye movements.

Gout is unlikely in this young male with no predisposing factors, and would not explain his urethritis and conjunctivitis.

Rheumatoid arthritis presents as symmetrical arthritis, commonly affecting small joints such as PIP, MCP or wrist joints. The most common ocular complication is keratoconjunctivitis sicca, rather than conjunctivitis.

Septic arthritis is incorrect as patients would be acutely unwell with pyrexia, and an inflamed swollen joint. The synovial fluid analysis would reveal a yellow-green appearance, with markedly raised white cell count (over 100000/ml), and a positive culture finding. The patient does not have other predisposing factors such as recent fracture, operation or ligament injury.

Question:

A 25-year-old man of black African-Caribbean origin with a history of eczema presents to the GP with a flare of red, itchy, dry skin behind his knees. As well as advising about emollients, the GP prescribes a course of betamethasone. They advise the patient to follow the instructions carefully and not to apply the betamethasone for more than one week.

What adverse effect is the patient most likely to experience from his treatment?

A.Dry skin

B.Hyperglycaemia

C.Reduced hair growth at site of application

D.Skin depigmentation

E.Skin hypertrophy

Answer:Skin depigmentation

Explanation:

Topical corticosteroids may cause patchy depigmentation in patients with darker skin

Important for meLess important

Betamethasone is an example of a corticosteroid. Corticosteroids are applied topically to reduce inflammation in skin conditions such as eczema or psoriasis. When applied appropriately (i.e. appropriate strength and lowest possible dose for lowest possible time), topical corticosteroids are associated with few adverse effects. However, if applied for a long period to the same area or in high doses, topical corticosteroids can cause local adverse effects, including skin depigmentation (particularly in patients with darker skin), skin atrophy (thinning), and excessive hair growth. The correct answer is therefore skin depigmentation.

Dry skin is not a typical side effect associated with topical steroid use. It is, however, associated with some other common topical preparations such as benzoyl peroxide and topical retinoids, both of which are used for acne.

There are numerous systemic effects of corticosteroids including weight gain, hyperglycaemia, hypertension and mood changes. However, it is rare for topical corticosteroids to be absorbed in high enough qualities to cause systemic side effects. Whilst it is possible if topical corticosteroids are used in high doses for long periods, it is not common and topical corticosteroids are far more likely to cause local adverse effects. For this reason, hyperglycaemia is incorrect.

Reduced hair growth at the site of application is incorrect. Corticosteroid treatment is actually associated with increased growth of hair at the site of application. For this reason, topical corticosteroids may be trialled in patients with alopecia.

Skin hypertrophy is incorrect. Topical corticosteroid application can actually cause skin atrophy (skin thinning). This skin thinning can present with telangiectasia and easy bruising.

Question:

A 73-year-old man is brought to the emergency department with acute upper gastrointestinal bleeding. He has been diagnosed with alcoholic liver cirrhosis. An ABCDE assessment is done and terlipressin is given. The doctor has requested an urgent endoscopy.

What is the most appropriate medication to give the patient before endoscopy?

A.Antibiotic therapy

B.Cimetidine

C.Octreotide

D.Propranolol

E.Tranexamic acid

Answer:Antibiotic therapy

Explanation:

Antibiotic prophylaxis reduces mortality in cirrhotic patients with gastrointestinal bleeding

Important for meLess important

Antibiotic therapy is the correct answer. Prophylactic antibiotics should be given in addition to terlipressin in anyone with suspected variceal bleeding. The prophylactic antibiotics of choice are usually quinolones.

Cimetidine is incorrect. H2 blockers are not recommended acutely before endoscopy. However, can be used as prophylaxis for mild acid reflux symptoms.

Octreotide is incorrect. This is sometimes used rather than terlipressin. However, the evidence shows it is less effective at reducing mortality.

Propranolol is incorrect. Beta-blockers are used as prophylaxis to reduce the rate of variceal bleeding.

Tranexamic acid is incorrect. This is not given in the acute management of variceal bleeding as recent studies show higher rates of venous thromboembolism.

Question:

A 41-year-old woman presents with a sore throat. Examination of the throat reveals:

What is the most likely diagnosis?

A.Tonsillar carcinoma

B.Peritonsillar abscess (quinsy)

C.Acute tonsillitis

D.Infectious mononucleosis

E.Retropharyngeal abscess

Answer:Acute tonsillitis

Explanation:

Infectious mononucleosis is a possibility but a simple tonsillitis is the most likely diagnosis.

Question:

Which one of the following adverse effects is most likely to be seen in patients taking ciclosporin?

A.Hypertension

B.Hypokalaemia

C.Alopecia

D.Dehydration

E.Atrophy of the gums

Answer:Hypertension

Explanation:

Ciclosporin side-effects: everything is increased - fluid, BP, K+, hair, gums, glucose

Important for meLess important

Question:

A 50-year-old man presents to the GP clinic with progressive abdominal swelling and weight gain. He has not experienced abdominal swelling before this episode. He reports slight abdominal discomfort but no pain throughout the day. He mentioned that he gained 2-3 kg over the past 2 weeks and is growing concern about this abnormal weight gain. He consumes approximately 6-7 cans of beer per day and is a non-smoker. His past medical history includes hypertension for which he is currently on enalapril.

On physical examination, he appears in discomfort and there is a visibly enlarged abdomen. He is currently afebrile and vital signs are stable. There is abdominal distention and shifting dullness. There is no tenderness, guarding or rigidity on abdominal palpation. Bowel sounds are normal. The liver is palpated 2-3 cm below the costal margin. There are multiple red arterioles with thin extensions on the upper chest and limbs. There is reddening of the palms bilaterally. The cardiorespiratory examination is unremarkable.

Diagnostic paracentesis is performed which appears clear. A protein concentration of 2g/dL and a high serum-ascites albumin gradient (SAAG) of > 1.1g/dL was found. Normal levels of white cell count were found. Serum electrolytes were normal.

Apart from alcohol cessation, what is the most appropriate long-term management plan?

A.Initiate IV ceftriaxone

B.Initiate propranolol

C.Restricting dietary sodium

D.Restricting fluid intake

E.Therapeutic large-volume paracentesis

Answer:Restricting dietary sodium

Explanation:

Reducing dietary sodium is a key intervention in patients with ascites

Important for meLess important

This patient has painless abdominal distention with shifting dullness and peripheral stigmata of alcoholic liver disease. This is suggestive of ascites secondary to alcoholic liver disease. In patients with ascites, it is important to look for features of fever, abdominal pain with distention and tenderness as it raises the concern of spontaneous bacterial peritonitis (SBP). In this case, this patient is afebrile and has no abdominal pain. This makes SBP less likely.

For patients experiencing first episodes of ascites, the cornerstone of management of alcoholic liver disease in the GP setting is abstinence from alcohol and good nutrition. Dietary management should focus on correcting any vitamin deficiencies, ensuring patients consume a high energy high protein diet, and reducing sodium intake once ascites has developed.

Restricting fluid intake is not indicated unless the patient is hyponatraemic. Restricting fluid intake may reduce ascites but this patient is currently on anti-hypertensives and this may cause complications of low blood pressure and dehydration.

This patient does not have SBP and therefore does not require IV ceftriaxone. Prophylactic antibiotics against bacterial infection are also not necessary as this patient has no gastrointestinal bleeding and has a normal total protein level.

Propranolol is used for primary prevention of oesophageal variceal bleeding.

Large-volume paracentesis is necessary for large volume tense ascites that usually arises from refractory ascites that respond poorly to diuretics.

Question:

A 65-year-old woman attends her GP clinic, complaining of several weeks of rash and itching. She feels well otherwise and has no other symptoms. She has a past medical history of hypertension, myocardial infarction and type 2 diabetes mellitus. Her drug history includes amlodipine, losartan, aspirin, bisoprolol and metformin.

On examination, there is a widespread urticarial rash.

Which of her medications is the most likely cause?

A.Amlodipine

B.Aspirin

C.Bisoprolol

D.Losartan

E.Metformin

Answer:Aspirin

Explanation:

Aspirin is a common cause of urticaria

Important for meLess important

Out of the medications above, the most common cause of urticaria is aspirin. Other common causes of urticaria include penicillins, non-steroidal anti-inflammatory drugs and opiates. Most medications have some sort of cutaneous reaction listed as a side effect in the BNF - there are case reports of all of the drugs listed as options here causing urticaria or another rash or skin reaction. However, none of them are recognised as being common.

Common side effects of amlodipine include peripheral oedema, constipation and diarrhoea.

Side effects of bisoprolol include dizziness, headache, diarrhoea, nausea and vomiting.

Those of losartan include abdominal pain, diarrhoea and dizziness.

Side effects of metformin include constipation, diarrhoea, nausea and vomiting.

Question:

You see a 22-year-old woman with 3 days history of severe right-sided ear pain, watery discharge and muffled hearing. The ear also feels very itchy.

On examination, the tympanic membrane appears intact, but the external auditory canal looks red, swollen and inflamed with purulent debris and wax. Pulling out the pinna causes the patient extreme pain. The mastoid process appears normal and is not tender to palpation. Conductive hearing loss is diagnosed using Rinne's and Weber's tests.

What is the 1st line treatment for this patient?

A.Oral antibiotic + a topical steroid for 1-2 weeks

B.Oral antibiotic + an oral steroid for 1-2 weeks

C.Over the counter acetic acid 2% solution

D.Topical antibiotic + a topical steroid for 1-2 weeks

E.Topical antifungal + a topical antibiotic + a topical steroid for 1-2 weeks

Answer:Topical antibiotic + a topical steroid for 1-2 weeks

Explanation:

Topical antibiotics with or without steroid are first line treatment in otitis externa

Important for meLess important

The correct answer is topical antibiotic + a topical steroid for 1-2 weeks.

In general, the treatment of acute uncomplicated otitis externa is straightforward. NICE CKS recommends topical acetic acid 2% (which can be purchased over the counter) under self-care advice and a topical antibiotic +- topical steroid as 1st line for treatment of uncomplicated acute otitis externa. The BNF advises that acetic acid is comparable to the latter and may be used for treating mild otitis externa, but efficacy is reduced beyond 7 days. There is evidence that a combined antibiotic and steroid preparation is superior to acetic acid according to the BMJ with a shorter duration of illness and lower recurrence rates. These come in either drops or sprays, the latter being preferred. In practice, the majority of topical preparations contain an aminoglycoside\* (such as neomycin or gentamicin). These can be ototoxic and are contraindicated in cases of tympanic membrane perforation or grommets\*\*.

\*If contact sensitivity to neomycin or another aminoglycoside ear drop is suspected, NICE recommends switching to a preparation that does not contain an aminoglycoside such as Cilodex which is a combination of topical ciprofloxacin and topical dexamethasone.

\*\*The BNF, however, points out that some specialists use aminoglycoside containing preparations, with caution, for no longer than 2 weeks and with appropriate counselling on the risk of ototoxicity and monitoring of hearing with baseline and repeat audiometry.

Oral antibiotic + a topical steroid for 1-2 weeks is not correct. Oral antibiotics may be used for complicated otitis externa where ear canal inflammation precludes adequate topical drug delivery, and this may be combined with a local steroid agent. There is no evidence of the superiority of such a regimen over topical administration for uncomplicated otitis externa, however, NICE recommends considering it in cases where an infection has spread beyond the external ear canal, the patient is immunosuppressed or the infection is severe. Severity is not defined by NICE. In such cases, ciprofloxacin (with pseudomonal coverage) is likely to be 1st line, but this may differ depending on local prescribing guidance.

Over the counter acetic acid 2% solution is not correct. This is probably going to help in addition to topical antibiotic and steroid preparations, however, going by the BNF, this case does not seem to be mild (severe pain, purulent discharge). Moreover, as mentioned above there is some evidence for the superiority of combined preparations over acetic acid 2%.

Oral antibiotic + an oral steroid for 1-2 weeks is not correct. Oral administration is not indicated 1st line for either antibiotics or steroids. Topical administration is proven to be effective as it achieves high local antibiotic and steroid concentrations. It is also preferred as it avoids the systemic side effects of systemic administration of corticosteroids.

Topical antifungal + a topical antibiotic + a topical steroid for 1-2 weeks is not correct. There is no indication that the patient is having a fungal otitis externa. This can happen after repeated or extended courses of topical antibiotics are used. It would present with fluffy, cotton-like debris, hyphae, or dots of black debris in the ear canal. The BNF advises fungal otitis externa should be treated with a topical antifungal such as topical clotrimazole 1% solution or with acetic acid 2% (unlicensed use) or with clioquinol 1% + a steroid preparation.

Question:

A 15-month-old child is brought into the emergency department after feeling generally unwell and being off food. The child's mother informs you that he has also been bleeding from his back passage. There are no reports of nausea or vomiting. On examination, you note that the patient is tender in the right lower quadrant and appears in evident distress. There were no masses felt in the abdomen on palpation. His heart rate is 170 beats per minute, respiratory rate is 32 breaths per minute, blood pressure is 68/37 mmHg and temperature is 36.2 ºC. His medical records show no known medical conditions and regular medications.

What is the most likely diagnosis?

A.Appendicitis

B.Cecal volvulus

C.Intussusception

D.Meckel's diverticulum

E.Peutz-Jeghers polyposis

Answer:Meckel's diverticulum

Explanation:

Meckels diverticulum is the number one cause of painless massive GI bleeding requiring a transfusion in children between the ages of 1 and 2 years.

Important for meLess important

Meckel's diverticulum is the correct answer. Meckel's diverticulum results from the failure of the vitelline duct to obliterate during the fifth week of fetal development. It typically occurs just two feet proximal to the ileocaecal valve, so the pain can mimic classic appendicitis pain. The patient is hemodynamically unstable, indicating that he is suffering from a substantial haemorrhage, confirmed by rectal bleeding. Despite being the most common cause of transfusion for children between 1 and 2 years old, many patients are often asymptomatic.

Although the pattern of pain demonstrated by the patient seems to mimic appendicitis, appendicitis would not explain the other features such as rectal bleeding. Additionally, the patient is haemodynamically unstable. Appendicitis rarely causes such a dramatic picture, unless it develops in perforation, but in this case, the patient is afebrile, making it unlikely. Additionally, nausea and vomiting are also present in 75% of patients with appendicitis and this patient does not complain about it.

Intussusception occurs most often between the ages of 3 and 12 months, with a peak age of approx 9 months. The majority of the cases are idiopathic, but in around 25% of cases, an underlying pathological cause can be identified. It usually presents with paroxysmal abdominal colic pain, hence a severe bout of pain affecting the abdomen. The parent will report their child as having a sudden onset of inconsolable crying episodes. Pallor can be observed and in an attempt to alleviate the pain the child may draw up their knees to their chest. This child does not show any of these features.

Peutz-Jeghers syndrome is a rare autosomal dominant disorder that is characterised by hamartomatous polyposis. Gastrointestinal symptoms first start becoming apparent at around 10 years of age. The age of our patient makes this diagnosis less likely.

Cecal volvulus often presents with sudden onset colicky lower abdominal pain but it typically also presents with abdominal distension and a failure to pass either flatus or stool. This patient does not complain about these symptoms.

Question:

A 42-year-old man is admitted to hospital with a 6-week history of cough, weight loss and occasional haemoptysis. A chest X-ray demonstrates fibronodular opacities and sputum acid-fast bacilli smear is positive. A diagnosis of tuberculosis is made and he is started on a combination of medications.

Subsequently, he develops a malar rash, arthralgia and myalgia. Blood tests are taken:

Antinuclear antibodies Positive

Anti-dsDNA antibodies Negative

Anti-histone antibodies Positive

Given the new findings, which drug is most likely to be responsible?

A.Ethambutol

B.Isoniazid

C.Pyrazinamide

D.Pyridoxine

E.Rifampicin

Answer:Isoniazid

Explanation:

Isoniazid can cause drug-induced lupus

Important for meLess important

The correct answer is isoniazid. The findings describe drug-induced lupus which presents with some, but not all, of the typical features of systemic lupus erythematosus (SLE). It usually resolves once the offending drug is stopped. Anti-histone antibodies are typically positive when lupus is drug-induced, and less commonly so in SLE. Conversely, anti-dsDNA antibodies are seen in more than half of SLE cases, but very rarely in drug-induced lupus. The most common drug causes include procainamide and hydralazine. However, from the list of tuberculosis antibiotics (and pyridoxine), the most likely cause is isoniazid. This antibiotic is known to cause drug-induced lupus. Other side effects include peripheral neuropathy and hepatitis.

Ethambutol is another antibiotic given as part of tuberculosis management. It is not known to cause drug-induced lupus. One of its key side effects includes optic neuritis and so visual acuity should be checked before and during treatment.

Pyrazinamide is another tuberculosis antibiotic. It is not known to cause drug-induced lupus, but can cause gout due to increasing uric acid levels and may cause hepatitis.

Pyridoxine is vitamin B6. This should be given to all patients taking isoniazid, as the latter can disrupt vitamin B6 levels which may lead to peripheral neuropathy. It is not known to cause drug-induced lupus.

Rifampicin, another antibiotic used for tuberculosis, has very rarely been linked to drug-induced lupus - although this may be confounded by concurrent administration of isoniazid, which remains the most likely cause here. Side effects include hepatitis, orange secretions and flu-like symptoms.

Question:

A 72-year-old man is referred to the sexual health clinic after presenting with perianal pain, bleeding and a palpable mass not in keeping with a haemorrhoid.

On further questioning, the patient reports he has multiple male sexual partners and regularly has unprotected anal sex.

A diagnosis of anal cancer is suspected and an anoscopic examination with biopsy is performed. Histology confirms the mass is a squamous cell carcinoma and based on its size it is staged at T3.

What risk factor is the strongest risk for this patient’s diagnosis?

A.Being on immunosuppressive drugs

B.HIV infection

C.HPV infection

D.Men who have sex with men

E.Multiple sexual partners

Answer:HPV infection

Explanation:

HPV infection is the strongest risk factor for anal cancer

Important for meLess important

Anal cancer is a relatively rare diagnosis, commoner in women, with most patients presenting in later life with symptoms of anal pain, bleeding and a lesion. There are several risk factors that increase a patient’s risk of developing anal cancer but the rising levels of HPV infections have been attributed to the increased incidence of the malignancy. HPV infection is established as the strongest risk factor for anal cancer with approximately 80-85% of squamous cell carcinoma (which accounts for 80% of all anal cancers) being caused by the viral infection.

Being on immunosuppressive drugs has been shown to increase an individual’s risk of anal cancer but like most other risk factors it is thought to be a result of the increased risk of HPV infection which drives the increased incidence of the malignancy.

HIV infection has been associated with anal cancer however the association is thought mainly to be a result of immunodepression caused by HIV increasing the risk of HPV infection and reducing the body’s ability to keep the HPV infection under control.

Men who have sex with men have a higher risk of anal cancer but again this is thought to be due to an increased risk of HPV infection.

Multiple sexual partners, if barrier protection is not used, can increase the risk of sexually transmitted diseases such as HPV which in turn is associated with anal cancer however this alone is a weaker risk factor than HPV infection.

Question:

A 45-year-old alcoholic patient starts to fit in the waiting room. You place him in the recovery position and apply oxygen. After 5 minutes he is still fitting. What is the most appropriate medication to administer?

A.Rectal midazolam 5 mg

B.Rectal thiamine 200 mg

C.Intravenous phenytoin (loading dose)

D.Rectal diazepam 2.5 mg

E.Rectal diazepam 10 mg

Answer:Rectal diazepam 10 mg

Explanation:

Question:

A 30-year-old man attends the emergency department with recurrent bloody diarrhoea. He was diagnosed with Crohn's disease 2 years prior and takes 6-mercaptopurine. He is complaining of severe abdominal pain, lightheadedness, and fatigue. His blood pressure is 105/80mmHg, his respiratory rate is 15/min, and his temperature is 38ºC.

Blood samples show an abnormal potassium level and a venous gas (VBG) is performed as part of his initial workup.

Given the patient's history, what is the most likely venous blood gas (VBG) result?

A.Metabolic acidosis with hyperkalaemia

B.Metabolic acidosis with hypokalaemia

C.Metabolic alkalosis with hyperkalaemia

D.Metabolic alkalosis with hypokalaemia

E.Respiratory acidosis with hypokalaemia

Answer:Metabolic acidosis with hypokalaemia

Explanation:

Prolonged diarrhoea may result in a metabolic acidosis associated with hypokalaemia

Important for meLess important

Metabolic acidosis with hypokalaemia is the correct answer. This is due to a loss of the bicarbonate concentration as excessive excretion from the gastrointestinal tract, decreases the bicarbonate concentration in the blood. This is offset by the increase in the concentration of chloride ions. Pancreatic secretions rich in bicarbonate go through the digestive tract without being absorbed resulting in a net decrease in it its concentration. Similarly, potassium is also lost through an intracellular shift and thus leads to metabolic acidosis with hypokalemia. Although Crohn's disease could explain his fatigue, this is also a symptom of hypokalemia.

Metabolic acidosis with hyperkalemia is incorrect. Although you may expect the patient to experience metabolic acidosis, there would be a decrease in potassium due to intestinal losses. Renal tubular acidosis type 4 is one of the causes of metabolic acidosis with hyperkalemia.

Metabolic alkalosis with hyperkalemia is answer. Due to bicarbonate loss, there would be an acidotic pH rather than a more alkaline one. In addition, hypokalemia is expected in diarrhoea due to it being lost through the intestines. Metabolic alkalosis is commonly caused as a result of hypokalaemia and/or primary hyperaldosteronism or Cushing’s syndrome.

Metabolic alkalosis with hypokalemia is incorrect. The loss of bicarbonate from the intestines results in a decreased pH, leading to acidosis. Metabolic alkalosis may result from vomiting/aspiration or the use of diuretics as well as primary hyperaldosteronism and Cushing’s syndrome.

Respiratory acidosis with hypokalaemia is incorrect. Although hypokalaemia would be present. Prolonged diarrhoea would not cause respiratory acidosis but would cause metabolic acidosis as there is a loss of bicarbonate. Respiratory acidosis commonly appears in neuromuscular disease, opiate and benzodiazepine overdose. It can also present in life-threatening asthma and COPD.

Question:

A 40-year-old man presents with a long standing inguinal hernia. On examination he has a small, direct inguinal hernia. He inquires as to the risk of strangulation over the next twelve months should he decide not to undergo surgery. Which of the following most closely matches the likely risk of strangulation over the next 12 months?

A.50%

B.40%

C.25%

D.15%

E.<5%

Answer:<5%

Explanation:

The annual probability of strangulation is up to 3% and is more common in indirect hernias. Elective repair poses few risks. However, emergency repair is associated with increased mortality, particularly in the elderly.

Question:

A 34-year-old woman is diagnosed with bipolar affective disorder for which she takes lithium. She has a past medical history of epilepsy. She has recently developed symptoms of lithium toxicity and a lithium level comes back at 1.6 mmol/L.

Which medication has most likely contributed to the lithium toxicity?

A.Carbamazepine

B.Naproxen

C.Paracetamol

D.Omeprazole

E.Ferrous sulphate

Answer:Naproxen

Explanation:

Lithium toxicity can be precipitated by NSAIDs

Important for meLess important

Naproxen is a non-steroidal anti-inflammatory drug (NSAIDs) which can cause renal impairment by decreasing prostaglandin synthesis thereby resulting in a decrease in glomerular filtration rate. There is evidence that these drugs can increase lithium levels and decrease renal lithium clearance.

Question:

A 69-year-old man attends his GP for a check-up. Upon his visit, his blood pressure was measured. The first reading was 190/125 mmHg on his left arm, and the second reading was 200/130 mmHg on his left arm. His right arm also produced readings of >180/120 mmHg. The patient is asymptomatic and was not previously on any medications.

What is the most appropriate next step in his management?

A.Admit to emergency department

B.Referral to endocrinology

C.Start an ACE-inhibitor

D.Urgent investigations for end-organ damage

E.Repeat clinic blood pressure in 7 days

Answer:Urgent investigations for end-organ damage

Explanation:

If new BP >= 180/120 mmHg + no worrying signs then the first step is urgent investigations for end-organ damage

Important for meLess important

If new blood pressure if >= 180/120 mmHg and the patient presents with no worrying signs, the first step is urgent investigations for end-organ damage. This includes blood tests, urine ACR, ECG, fundoscopy, etc, and should be done promptly. If end-organ damage is identified, antihypertensives should be started immediately without waiting for results of ABPM/HBPM.

A patient would only be admitted for specialist assessment if there are signs of retinal haemorrhage or papilloedema (accelerated hypertension) or life-threatening symptoms such as new-onset confusion, chest pain, signs of heart failure, or acute kidney injury.

A referral to endocrinology is recommended by NICE only if a pheochromocytoma is suspected. This is if the patient presented with symptoms such as postural hypotension, headaches, palpitations, diaphoresis, or pallor.

Antihypertensives should be considered to start if there is end-organ damage. If there are no signs of end-organ damage, the clinic blood pressure should be repeated within 7 days.

Repeating clinic blood pressure in 7 days should be the plan only after investigations to look for end-organ damage have been completed.

Question:

A 63-year-old man presents complaining of several months of weight loss, fatigue and mild abdominal distension. He has a past medical history of hypertension.

A colonoscopy was performed and a small intestine biopsy was taken. The pathology report reads: 'villous atrophy, crypt hyperplasia, and raised intra-epithelial lymphocytes'.

What management is most likely to be started?

A.No treatment required

B.Staging scan and consideration of surgical resection

C.Oral steroid and mesalazine

D.Removal of gluten from diet

E.Oral metronidazole

Answer:Removal of gluten from diet

Explanation:

Histology of coeliac disease: villous atrophy, raised intra-epithelial lymphocytes, and crypt hyperplasia

Important for meLess important

The pathology report describes the classic findings of coeliac disease. In coeliac disease, the management is the removal of gluten from the diet.

The other answers:

1) In general, abnormal pathology implies that something should be done. In some conditions, watchful waiting might be an appropriate conservative management. However, coeliac disease is not one of these.

2) A staging scan and consideration of surgical resection would be appropriate for cancer. Histology for cancer would show dysplastic cells.

3) Steroid and 5-ASA is an appropriate first-line management for mild-to-moderate colitis. Biopsies would show a much more inflammatory picture.

4) Metronidazole is a commonly-used antibiotic for GI infections, including Clostridium difficile and Giardia lamblia.

Question:

A 74-year-old woman presents to the emergency department with a painful swollen wrist. She is currently on oral antibiotics for a urinary tract infection. She has a past medical history of osteoarthritis.

Observations:

Heart rate 88 beats per minute

Blood pressure 145/75 mmHg

Respiratory rate 18/minute

Oxygen saturations 96% on room air

Temperature 37.1C

On examination, the left wrist is erythematous, tender and swollen with a restricted range of motion.

Plain radiography of the left wrist reveals calcification of the triangular fibrocartilage.

What is the most likely diagnosis?

A.Gout

B.Pseudogout

C.Psoriatic arthritis

D.Rheumatoid arthritis

E.Septic arthritis

Answer:Pseudogout

Explanation:

Chondrocalcinosis helps to distinguish pseudogout from gout

Important for meLess important

Pseudogout is the correct answer. The patient presents with a monoarthritis of the left wrist. The most common causes of monoarthritis are septic arthritis and crystal arthritis. However, crystal arthritis is far more common than native joint septic arthritis. Calcification of the triangular fibrocartilage suggests chondrocalcinosis. This occurs in pseudogout but is not associated with gout. Flares of pseudogout are common in those patients with intercurrent infection. Age, sex and osteoarthritis are also risk factors for this condition and the wrist is commonly affected. While pseudogout is the most likely diagnosis, the joint should still be aspirated to exclude infection. The mortality of septic arthritis is almost 10% and it is an important diagnosis not to miss.

Gout is incorrect. This is another plausible cause of monoarthritis. However, the radiological findings in this case (and the joint affected) favour pseudogout rather than gout.

Psoriatic arthritis is incorrect. Any inflammatory arthritis can theoretically present as monoarthritis. However, it is more typical for this type of inflammatory arthritis to present in an oligoarticular or polyarticular fashion. There may also be a family history or associated with a psoriatic rash. The plain x-ray may demonstrate juxta-articular new bone formation.

Rheumatoid arthritis is incorrect. Any inflammatory arthritis can theoretically present as monoarthritis. However, it is more common for this type of inflammatory arthritis to present with small joint polyarthritis affecting the hands and feet. The plain x-ray may demonstrate erosions and juxta-articular osteopenia.

Septic arthritis is incorrect. This is the most important diagnosis to exclude and all monoarthritis should be aspirated to exclude infection. A pre-existing infection (e.g. a UTI) is a risk factor. However, it is not the most likely diagnosis. Crystal arthritis is far more common than septic arthritis.

Question:

A 29-year-old patient attends a rheumatology clinic regarding her well-controlled systemic lupus erythematosus (SLE). She reports that her and her partner are planning to become pregnant in the next 6-months.

Which of the following medications, used to treat SLE, would be safe for this patient to continue?

A.Azathioprine

B.Cyclophosphamide

C.Methotrexate

D.Mycophenolate

E.Rituximab

Answer:Azathioprine

Explanation:

Azathioprine is safe to use in pregnancy

Important for meLess important

Azathioprine is safe to use during pregnancy, with the supervision of a specialist. There is a slight risk of prematurity and low birth weights. Other medication options to treat SLE during pregnancy include hydroxychloroquine and steroids.

Cyclophosphamide is teratogenic and should not be used in pregnancy. It is recommended to be stopped at least 3-months before conceptions (in men and women).

Methotrexate is not safe to use during pregnancy, and is recommended to be discontinued at least 6-months before stopping contraception if wishing to conceive. It inhibits folic acid and therefore can lead to birth defects, including neural tube defects.

Mycophenolate, although more commonly used post-transplant, can be an option in SLE. Especially in lupus nephritis. However, it is unsafe to use during pregnancy, due to risk of pregnancy loss and cognitive malformations in the foetus. It is advised to stop mycophenolate 3-months prior to conception.

Rituximab is a monoclonal antibody, which can be used to treat SLE under specialist supervision. It should be avoided in pregnancy, due to risk of B-lymphocyte depletion in the foetus. It is recommended to be discontinued 1-year prior to conceiving.

Question:

A 68-year-old woman has presented to the urgent care centre with a 2-day history of pain and swelling of her left lower leg. There is no history of trauma.

On examination, you note that her left calf is red and swollen and measures 4cm larger in diameter compared to the right side. She has localised tenderness along the deep venous system.

You clinically suspect a deep vein thrombosis (DVT) and have arranged blood tests which have shown the following:

D-Dimer 980 ng/mL (< 400)

You commence her on a therapeutic dose of apixaban and arrange for her to have a proximal leg ultrasound the following morning.

The ultrasound subsequently finds no evidence of a proximal leg DVT.

What is the most appropriate management option?

A.Stop apixaban and provide safety-netting advice

B.Continue apixaban and repeat ultrasound in 7 days

C.Stop apixaban and repeat ultrasound in 7 days

D.Continue apixaban and repeat ultrasound in 48 hours

E.Stop apixaban and repeat ultrasound in 48 hours

Answer:Stop apixaban and repeat ultrasound in 7 days

Explanation:

DVT investigation: if the scan is negative, but the D-dimer is positive → stop anticoagulation and repeat scan in 1 week

Important for meLess important

The latest NICE guidance on the management of venous thromboembolic diseases is clear on how such patients should be managed.

This woman has a Wells score of at least 2 points (based on the localised tenderness and the asymmetrical calf swelling measuring at least 3cm compared to the asymptomatic side), hence a DVT is considered clinically likely. The raised d-dimer - which has most likely been done alongside starting therapeutic anticoagulation as a proximal leg ultrasound could not be performed within 4 hours - supports this diagnosis.

However, if the ultrasound scan is subsequently negative, NICE advises that interim therapeutic anticoagulation should be stopped and a repeat proximal leg scan should be arranged 6-8 days later.

If the second scan is positive, anticoagulation should be restarted and continued. If the second scan is negative, alternative diagnoses should be considered and appropriate safety-netting advice given.

The principle behind repeating the scan after 1 week is to identify if any distal (isolated calf) DVTs - that are not detectable on proximal ultrasound scans - have extended or migrated proximally. These are considered clinically important and hence require therapeutic anticoagulation. This repeat-scan strategy was been shown in multiple clinical trials to be safe.

Repeating the scan in 48 hours does not give enough time to assess for the propagation of any distal thrombi.

NICE recommends only performing a proximal scan (rather than a whole leg scan) as only 3-10% of isolated calf DVTs extend into the proximal veins, while the rest recover with no treatment.

Question:

A 65-year-old man presents to his GP concerned about blood in his stools.

Since a few weeks he has been noticing red blood when passing stools. Four days ago this was also accompanied by pain when passing movements, and he felt a mass around his back passage.

On examination, you visualise a purple mass in the perianal area. Direct rectal examination confirms a tender lump at the 7 o'clock position.

What is the most appropriate management of this presentation?

A.Admit under general surgery for haemorrhoidectomy

B.Advise analgesia and stool softeners, suggest ice packs around the area

C.Referral to gastroenterology for suspected perianal Crohn's disease

D.Referral to general surgery for incision and drainage of perianal abscess

E.2-week-wait referral for suspected colorectal carcinoma

Answer:Advise analgesia and stool softeners, suggest ice packs around the area

Explanation:

Thrombosed haemorrhoids are characterised by anorectal pain and a tender lump on the anal margin

Important for meLess important

The history presented here is highly suggestive of thrombosed haemorrhoids, given the pain when passing stools and the tender lump on a background of haematochezia. Unless thrombosed, haemorrhoids are generally painless.

If a patient with thrombosed haemorrhoids presents within 72 hours of onset of the pain, NICE recommends offering admission for surgical management of the piles. This provides immediate pain relief.

Following the first 72 hours of acute thrombosis, the thrombus is likely to organise and contract- lessening symptoms and typically self-resolving within a few weeks. In such scenario, it is more appropriate to offer conservative management options including analgesia, stool softeners and using ice-packs to reduce pain.

Perianal Crohn's disease would be unlikely in a patient not known to be affected by inflammatory bowel disease.

A perianal abscess would present with severe pain in the perianal area, but unlike in thrombosed haemorrhoids this would not necessarily be associated with passing stools. A visible lump may or may not be present. Purulent discharge may be present if the abscess has ruptured, however blood would generally not be seen.

Whilst it is important to rule out more sinister causes of bleeding per rectum, referring this patient under a 2-week-wait rule would not solve his current symptoms. It is more appropriate to investigate this patient once this acute presentation has resolved.

Question:

An 18-year-old man presents to the emergency department with worsening shortness of breath, chest tightness, and a dry cough. Auscultation of the chest shows a high-pitched whistling on exhalation, the patient can complete full sentences and is showing no signs of cyanosis.

His heart rate is 92 bpm, his blood pressure is 128/75 mmHg, and his oxygen saturations are 96% on 2L of oxygen via nasal cannula. He is able to tolerate oral fluids and can speak in full sentences. High-dose inhaled salbutamol has been initiated.

What is the most appropriate next step in his management?

A.Give IV aminophylline

B.Give IV hydrocortisone

C.Give IV magnesium sulfate

D.Give inhaled beclometasone

E.Give oral prednisolone

Answer:Give oral prednisolone

Explanation:

All patients with acute asthma should receive oral prednisolone rather than IV hydrocortisone (unless vomiting etc)

Important for meLess important

Give oral prednisolone is correct. This patient has signs and symptoms consistent with acute asthma given their wheezing, dry cough, and chest tightness. All patients with acute asthma should be given corticosteroids, preferably in the form of oral prednisolone. IV hydrocortisone should be given to patients that are unable to swallow tablets, such as due to nausea and vomiting. There is nothing in this history that suggests this patient would be unable to swallow tablets.

Give IV hydrocortisone is incorrect. Although this is a corticosteroid that is given to patients with acute asthma, oral prednisolone is preferred unless the patient is unable to swallow tablets, such as nausea and vomiting.

Give IV magnesium sulfate is incorrect. Although this may be used in severe or life-threatening asthma, it should be started under specialist supervision. It is usually given after giving corticosteroids, therefore it would be more appropriate to give corticosteroids first.

Give inhaled beclometasone is incorrect. This does not play any role in the management of acute asthma, as it is not potent enough to deal with its severity. It is instead used in the prophylaxis of asthma symptoms.

Give IV aminophylline is incorrect. Similarly to magnesium sulfate, this is considered following consultation with senior medical staff and is given after giving corticosteroids, it would be more appropriate to give corticosteroids first.

Question:

A patient presents to their GP 2-days following a 1-month volunteering trip to sub-Saharan Africa. They have been feeling very feverish recently and have recorded their temperature to be above 38.0ºC on several occasions. They report feeling very tried recently. They appear jaundiced. On examination they have a tender abdomen.

On performing a blood test you discover the patient is hypoglycaemic and has a low platelet count. The diagnosis is confirmed on performing a blood-film.

What is the most likely cause of the underlying diagnosis?

A.Plasmodium malariae

B.Plasmodium falciparum

C.Plasmodium ovale

D.Propionibacterium acne

E.Bartonella quintana

Answer:Plasmodium falciparum

Explanation:

Falciparum malaria is the commonest type of malaria

Important for meLess important

The most likely underlying diagnosis is malaria. This is most commonly associated with Sub-Saharan Africa (about 85% of all cases). It cause symptoms such as fever, hepatosplenomegaly, diarrhoea and jaundice. It is also associated with anaemia, thrombocytopaenia rosetting of red blood cells and auto-agglutination of RBCs. Severe signs of malaria include acidosis and a parasitaemia >2%.

The commonest cause of malaria is Plasmodium falciparum. P. ovale and P. malariae are less common causes of malaria.

Propionibacterium acne causes acne vulgaris, the skin condition.

Bartonella quintana is associated with trench fever.

Question:

A 75-year-old male presents with severe, sharp pain on defecation. He has suffered from constipation for several years but recently has had a few weeks of constant loose stools. He denies nausea or vomiting but does report intermittent blood in his stools and some possible weight loss over the past few months.

He is independent and lives with his wife. His past medical history includes hypertension, for which he takes amlodipine once a day. He is also allergic to penicillin. On examination, you see an anal fissure at the 3 o'clock position.

What would be the first step in the management plan?

A.Advise on a high fibre diet

B.Request a routine colonoscopy

C.Trial of a combination of bulk-forming laxatives and high fibre diet

D.Trial of topical glyceryl trinitrate (GTN)

E.Refer to colorectal surgeons via 2 week wait pathway

Answer:Refer to colorectal surgeons via 2 week wait pathway

Explanation:

Lateral anal fissure? Look for other causes

Important for meLess important

Primary anal fissures are typically caused by constipation, with approximately 90% occurring posteriorly, and 10% anteriorly. A lateral anal fissure suggests a secondary cause and requires further investigation. The additional history of change in bowel habit, weight loss, and blood in the stools, in this particular age group, would require an urgent referral to secondary care.

Advice on a high fibre diet may be part of the appropriate management for an acute, primary anal fissure, in the history of constipation and/or straining. Anal fissures can also be caused by persistent loose stools, so this advice would not be appropriate for this case.

A routine colonoscopy is not appropriate as the clinical features require urgent investigation by a specialist team.

A trial of a combination of bulk-forming laxatives and a high fibre diet would be part of the appropriate management for an acute, primary anal fissure, alongside lubricants and analgesia. The aim is to make it easier to pass stools while the anal fissure heals. This would not be appropriate for this case.

A trial of topical glyceryl trinitrate (GTN) would be part of the appropriate management for a chronic, primary anal fissure, but would not be appropriate for this case given the urgent need for further investigations.

Question:

A 57-year-old man presents to the GP with a 3-week history of dry cough. He denies any shortness of breath or chest pain, has had no unexplained weight loss and does not feel unwell.

The patient has a history of type 2 diabetes mellitus controlled by lifestyle and diet and was diagnosed with hypertension 1 month ago, for which he was started on lisinopril. He has never smoked and drinks 6 units of alcohol weekly.

What is the most appropriate step in his management?

A.Arrange a skin prick allergy test

B.Reassure him as the symptoms will settle

C.Stop lisinopril and start amlodipine

D.Stop lisinopril and start irbesartan

E.Stop lisinopril and start ramipril

Answer:Stop lisinopril and start irbesartan

Explanation:

Angiotensin-receptor blockers should be used where ACE inhibitors are not tolerated

Important for meLess important

This patient has recently been started on an ACE inhibitor to control hypertension. Given his medical history of type 2 diabetes mellitus, an ACE inhibitor is preferred as it is both renal protective and acts as an anti-hypertensive. He is likely to be experiencing a dry cough secondary to lisinopril use, as this is a widespread side effect of ACE inhibitors. This occurs due to the buildup of bradykinin in the lungs which acts as an irritant.

Stop lisinopril and start irbesartan is correct. Patients who cannot tolerate taking ACE inhibitors (such as lisinopril) should be offered an angiotensin-receptor blocker (ARB, such as irbesartan) in its place according to NICE. ARBs are not associated with the buildup of bradykinin in the lungs and hence, do not cause a dry cough.

Arrange a skin prick allergy test is incorrect. This man is not allergic to lisinopril, as this would present as itching, urticaria, angioedema, or even anaphylaxis. These symptoms are due to a build-up of bradykinin in the lungs. All that is required is to change lisinopril to an ARB.

Reassure him as the symptoms will settle is incorrect. The levels of bradykinin remain elevated in the lungs when using ACE inhibitors, therefore, the dry cough it causes does not settle with time.

Stop lisinopril and start amlodipine is incorrect. Although stopping lisinopril is correct, NICE recommends switching ACE inhibitors to an ARB instead of calcium channel blockers (CCBs) such as amlodipine, as CCBs are typically used second-line. If switching to an ARB does not sufficiently control his hypertension, then adding a CCB may be considered.

Stop lisinopril and start ramipril is incorrect. Lisinopril is resulting in a dry cough in this man. Switching to a different ACE inhibitor will not help as the dry cough is related to the class of drug, not the specific drug. Lisinopril should be stopped and an angiotensin receptor blocker such as irbesartan should be trialled.

Question:

A woman in her 11th week of pregnancy presents to the emergency department with a one-week history of severe vomiting and loss of appetite. The smell of food makes her nauseous. She has not eaten anything for the last three days and has only drunk small amounts of water.

Current medications include omeprazole and folic acid. She is teetotal and has never smoked.

Which of the following is an example of a risk factor for this condition?

A.Corticosteroids

B.Increased maternal age

C.Multiparity

D.Multiple pregnancies

E.Smoking

Answer:Multiple pregnancies

Explanation:

Multiple pregnancy is a risk factor for hyperemesis gravidarum

Important for meLess important

Multiple pregnancies is the only risk factor listed above for hyperemesis gravidarum (HG). Other risk factors include obesity, epilepsy, stress and positive family history.

Corticosteroids such as prednisolone may be used to treat hyperemesis gravidarum. Other medications may include anti-emetic drugs such as ondansetron as well as vitamins B6 and B12.

Increased maternal age increases the risk of pregnancy-induced hypertension, pre-eclampsia, gestational diabetes and Down's syndrome, but has not been shown to increase the risk of developing HG during pregnancy.

Multiparity has not been shown to increase the risk of developing hyperemesis gravidarum, although the previous history of hyperemesis gravidarum in a previous pregnancy may be a risk factor.

Smoking before and/or during pregnancy does not increase the risk of hyperemesis gravidarum. Studies have shown that smoking may reduce the risk of developing hyperemesis gravidarum.

Question:

A 62-year-old female presents to the Emergency Department with chest pain and shortness of breath. She says the pain came on after she fell in her home after tripping over. The pain is a 6/10 but is an 8 when she breathes in.

Given her history, the doctor wants to rule out a pulmonary embolus (PE). A 2-level PE Wells score is calculated as 1.5 (for a previous DVT) hence the doctor arranges for a D-dimer test and starts the patient on anticoagulation, expecting the test results to take over 4 hours to return.

The patient's chest x-ray is clear and her D-dimer result comes back as negative.

What is the most appropriate next step?

A.Arrange an urgent CT pulmonary angiogram

B.Consider an alternative diagnosis but keep the interim anticoagulation

C.Repeat D-dimer

D.Stop the anticoagulation and consider an alternative diagnosis

E.Switch to warfarin

Answer:Stop the anticoagulation and consider an alternative diagnosis

Explanation:

Investigating suspected PE: if 2-level PE Wells score is ≤ 4 and D-dimer is negative then stop anticoagulation and consider alternative diagnosis

Important for meLess important

Pleuritic chest pain and shortness of breath should always raise suspicion of a PE, but given the patient's low Wells score and negative D-dimer, another diagnosis is more likely. The history of trauma suggests a musculoskeletal injury may well be the cause.

An urgent CTPA would be indicated if this patient had a 2-level PE Wells score of 4 or more, or if the D-dimer test came back positive. As neither of these occurred, the test would be unnecessary.

Due to the patient's negative D-dimer, considering an alternative diagnosis is correct. However, continuing anticoagulation would not be appropriate as, in the absence of a clot, it would confer a bleeding risk.

There is no reason to repeat the D-dimer at this stage unless they suspected there was a problem with the sample.

Anticoagulation with warfarin (or a direct oral anticoagulant) would be indicated for a confirmed PE.

Question:

A 71-year-old woman is diagnosed with chronic obstructive pulmonary disease (COPD).

She is an ex-smoker, up-to-date with influenza and pneumococcal vaccinations, and has tried all the lifestyle measures recommended to her. However, her symptoms have not improved. She has never had asthma or atopic disease and has a normal eosinophil count.

What is the most appropriate initial treatment option?

A.Beclomethasone

B.Ipratropium

C.N-acetylcysteine

D.Oxygen

E.Salmeterol

Answer:Ipratropium

Explanation:

A SABA or SAMA is the first-line pharmacological treatment of COPD

Important for meLess important

Ipratropium is a short-acting muscarinic antagonist (SAMA), and used first-line in the pharmacological management of COPD.

Beclomethasone may be used as an inhaled corticosteroid therapy. However, this is not the first line, and unlikely to be of many benefits due to this patient's normal eosinophil count and absence of atopic disease.

N-acetylcysteine is not used first-line in COPD but can be of use in symptom control by reducing thick secretions in the airways.

Oxygen is only used in severe COPD when specific criteria are met, such as persistently low oxygen saturations.

Salmeterol, a long-acting beta antagonist, is used as a second-line treatment for COPD.

Question:

A neonate who was born prematurely at 35 weeks gestation is registered at the Practice. He was very well after delivery, without any notable complications such as respiratory problems. How should his routine childhood immunisations be given?

A.Adjust schedule for gestational age

B.Give according to chronological age

C.Refer to the hospital to receive first immunisations

D.Start immunisations at 3 months old

E.Delay until weight reaches 3.5kg

Answer:Give according to chronological age

Explanation:

Babies who were born prematurely should receive their routine vaccinations according to chronological age; there should be no correcting for gestational age. Babies who were born prior to 28 weeks gestation should receive their first set of immunisations at hospital due to risk of apnoea.

Question:

A 45-year-old female presents to the general practitioner with a two-week history of progressive paraesthesia of the fingers, toes and peri-oral area, associated with muscle cramps and spasms. She recently underwent a thyroidectomy for Graves' disease but is otherwise well with no drug allergies.

Given the likely diagnosis, what is this patient's ECG likely to show?

A.Alternating QRS amplitude

B.Isolated QTc elongation

C.Isolated QTc shortening

D.T wave inversion, QTc prolongation and visible U waves

E.Tall, peaked T waves, QTc shortening and ST-segment depression

Answer:Isolated QTc elongation

Explanation:

Complications of thyroid surgery - damage to parathyroid glands can result in hypocalcaemia

Important for meLess important

This patient is presenting with paraesthesia associated with cramps and spasms following thyroid surgery. The most likely diagnosis is hypocalcemia secondary to parathyroid gland damage. The ECG change most commonly associated with this condition is isolated QTc elongation. Dysrhythmias are uncommon and while Torsades de pointes is associated, this is only present in advanced conditions.

Alternating QRS amplitude is incorrect. This describes electrical alternans, which is associated with pericardial effusion.

Isolated QTc shortening is incorrect as this is most commonly associated with hypercalcaemia, common causes of hypercalcaemia include hyperparathyroidism and malignancy.

The combination of T wave inversion, QTc prolongation and visible U waves is incorrect as this is associated with hypokalaemia, common causes of which include vomiting, thiazide use and Cushing's syndrome.

The combination of tall, peaked T waves, QTc shortening and ST-segment depression is incorrect as this is associated with hyperkalaemia, common causes of which include Addison's disease, rhabdomyolysis, acute kidney injury and potassium-sparing diuretics.

Question:

A 42-year-old man presents to the GP with problems regarding fertility. He and his partner have tried for pregnancy for the last 12 months unsuccessfully. There is a history of diabetes mellitus and he smokes 30 cigarettes daily and drinks 12 units of alcohol per week.

On examination, he is obese and slight gynaecomastia is present. A testicular examination reveals a right-sided testicular lump similar in feeling to a bag of worms. When lying down, it does not disappear. He denies any pain or haematuria.

What is the most appropriate next step in his management?

A.Manage conservatively and observe

B.Perform semen analysis testing

C.Perform serum FSH and testosterone testing

D.Routine referral to urology for surgery

E.Urgent 2-week wait referral to urology

Answer:Urgent 2-week wait referral to urology

Explanation:

Varicocele can be a sign of malignancy due to compression of the renal vein between the abdominal aorta and the superior mesenteric artery - known as the nutcracker angle

Important for meLess important

Urgent 2-week wait referral to urology is correct. This patient has signs and symptoms consistent with a varicocele (subfertility and a testicular mass similar in feeling to a 'bag of worms') that does not diminish when lying down. This should raise suspicion of compression of the renal vein which suggests the presence of an abdominal or retroperitoneal mass, such as malignancy. As well as this, right-sided varicoceles alone are rare and should further raise suspicion of this, therefore necessitating an urgent referral for suspected malignancy. It is important to note that this may be a sign of renal cell carcinoma, and up to 50% of cases are diagnosed incidentally.

Manage conservatively and observe is incorrect. This would be an appropriate management step if the varicocele diminished when lying down and was not on the right side, but instead on the left unless it was causing significant discomfort. Since this patient's varicocele is on the right and does not diminish when lying down, compression of the renal vein should be suspected which should further raise suspicion of malignancy.

Perform semen analysis testing is incorrect. Similarly to the above, this would be appropriate if this was a standard case of varicocele and if the mass was on the left and diminished when lying down. Given that this is not the case, malignancy should be suspected.

Perform serum FSH and testosterone testing is incorrect. This could be considered to further investigate his infertility, however, the concerns regarding malignancy should be addressed first as this patient's varicocele is on the right and does not diminish when lying down. Although a condition characterised by hypogonadism such as Klinefelter's syndrome can present with an infertile patient with gynaecomastia, this patient is obese and it is likely that the gynaecomastia is a result of that rather than hypogonadism.

Routine referral to urology for surgery is incorrect. Although a referral to urology is appropriate, this should be done urgently via a suspected cancer (2-week wait) pathway. If this patient had a varicocele that was on the left and did diminish when lying down, this option could be considered, however this does not apply in this case and this patient's presentation should raise suspicion of malignancy.

Question:

A 75-year-old man is recovering well on the ward after being admitted for a severe asthma attack. He has a medical history of asthma, benign prostatic hyperplasia and osteoarthritis. He is currently taking oral prednisolone, salbutamol inhaler, naproxen and tamsulosin. His observations are now normal. Routine blood tests show:

Hb 10 g/dl

MCV 85 fl

Platelets 200\* 109/l

WBC 6 \* 109/l

Na+ 140 mmol/l

K+ 4.2 mmol/l

Urea 15 mmol/l

Creatinine 90 µmol/l

What is the most likely cause of the abnormal blood result?

A.Osteoarthritis

B.Acute kidney injury

C.Malnutrition

D.Gastrointestinal bleed

E.Tamsulosin side effect

Answer:Gastrointestinal bleed

Explanation:

This patient has likely suffered an upper gastrointestinal (GI) bleed. This is indicated by the raised urea, as well as a marginal normocytic anaemia. The anaemia is due to the blood loss. Urea is a breakdown product of red blood cells and is raised here due to digestion of the blood in the stomach. The blood acts as a protein 'meal'.

A further clue to the diagnosis is the patient's long term use of the NSAID naproxen without gastroprotection (usually a proton pump inhibitor). This puts the patient at increased risk of developing peptic ulcers and subsequently bleeding. Prednisolone also increases the risk of an upper gastrointestinal bleed.

Osteoarthritis does not typically cause abnormal blood results. While it could be argued that the arthritis led to the NSAID use which led to the GI bleed, it did not cause the abnormal blood result directly.

An acute kidney injury would more likely present with a raised creatinine as well as raised urea. It also does not explain the anaemia.

Malnutrition would more likely present with a low urea.

Tamsulosin does not cause raised urea or normocytic anaemia.

Question:

A 71-year-old man has fallen off his bike and hit his head. According to a friend at the scene, he was unconscious for less than a minute after falling. At the time he was cycling slowly on a path beside a canal. On initial assessment, he has some bruising on his upper and lower limbs, has a Glasgow coma score (GCS) of 15, and no neurological deficit. He has not vomited or had a seizure since the accident, which he was able to describe to you. He is taking antihypertensives but otherwise has no notable medical history. Which of the following would be the most appropriate next step?

A.Perform a CT head scan within 1 hour

B.Perform a CT head scan within 8 hours

C.Perform a MRI head scan within 1 hour

D.Perform a MRI head scan within 8 hours

E.Discharge the patient and tell him to return if further symptoms develop

Answer:Perform a CT head scan within 8 hours

Explanation:

CT imaging of the head is currently the primary investigation of choice for detecting clinical important brain injuries in the acute setting.

For safety, logistic and resource reasons MRI is not the investigation of choice in this setting.

NICE recommends that patients who suffer a head injury with loss of consciousness or amnesia, and who are aged over 65 years old, should have a CT head scan within 8 hours. If the patient had an indication for a CT head scan within 1 hour, obviously this would take precedence. The indications for CT head scan within 1 hour and within 8 hours, are found below.

References:

NICE (2014): Head injury: assessment and early management.

Question:

A 50-year-old man attends his local emergency department after hitting his head.

He describes tripping down his 7 stairs and landing on a carpeted landing, losing consciousness for about 30 seconds. The patient feels well in himself but wants 'checking over'.

His past medical history is significant only for hypertension, for which he takes ramipril.

On examination, his GCS is 15/15, pupils equal and reactive to light and there is no focal neurological deficit or sign of bony injury. There is no evidence of a basal skull fracture.

What is the most appropriate course of action?

A.AP and lateral skull X-rays

B.CT head within 1 hour

C.CT head within 8 hours

D.Discharge home with head injury advice sheet

E.MRI brain within 1 hour

Answer:CT head within 8 hours

Explanation:

CT head scan is required within 8 hours for patients with a dangerous mechanism of injury, including falling more than 1 metre or from a height of 5 stairs or more

Important for meLess important

NICE has produced clear guidance on the imaging required for patients following head injuries.

The correct answer is CT head within 8 hours because this man has a 'dangerous mechanism of injury'. This includes falls from >1 metre, falls from a height of 5 stairs or more and high-mechanism road traffic collisions. However, it is important to rule out the presence of any more immediate risk factors that would expedite this patient's CT head to be completed within 1 hour (e.g. vomiting more than once, GCS < 15 2 hours after injury and signs of basal skull fracture). The fall from 7 steps and the absence of criteria that warrant a CT head within 1 hour makes a CT head within 8 hours the most suitable answer.

AP and lateral skull X-rays is incorrect. Skull X-rays are rarely used as a CT head will allow for imaging of the brain parenchyma as well as identifying any skull fractures.

CT head within 1 hour is incorrect - NICE guidance states that this man's history only warrants a scan within 8 hours.

Discharge home with head injury advice sheet . These sheets are often used in emergency departments, highlighting symptoms that patients should keep an eye out for when they get home, however, this is not the appropriate course of action for this patient.

Question:

A 34-year-old IVDU presented to the Emergency Department due to fever, chills and feeling unwell. Examination revealed vesicular breath sounds, S1 & S2 heart sounds with a murmur.

Given the most likely diagnosis, which of the following criteria is helpful?

A.Jones criteria

B.Duke Criteria

C.Fraser criteria

D.GRACE score

E.QRISK score

Answer:Duke Criteria

Explanation:

The Duke criteria are used for definitive diagnosis of infective endocarditis

Important for meLess important

Jones criteria are used to diagnose rheumatic fever after a streptococcal infection

Duke criteria are used to diagnose infective endocarditis (See notes below for detailed information on the Duke criteria)

Fraser criteria are used to determine if contraception is appropriate for a young adult

GRACE score is used to risk-stratify NSTEMI patients. High-risk NSTEMI patients would receive urgent invasive coronary angiogram.

QRISK score is used to estimate the 10-year risk of cardiovascular disease. if this is at least 10%, statins should be commenced.

Question:

A 28-year-old woman who is 11 weeks pregnant is referred to the early pregnancy assessment unit with a one day history of abdominal pain and vaginal bleeding. A trans-vaginal ultrasound scan confirms a failed intra-uterine pregnancy. The patient is currently afebrile and haemodynamically stable, but has a past medical history of Von Willebrand disease.

What is the most appropriate initial management of this patients miscarriage?

A.Oral methotrexate

B.Salpingectomy

C.Vacuum aspiration

D.Vaginal misoprostol

E.Wait 7-14 days

Answer:Vaginal misoprostol

Explanation:

Medical management of a miscarriage involves giving vaginal misoprostol alone

Important for meLess important

According to NICE guidelines published in 2018, vaginal misoprostol is most appropriate as the patients past medical history of coagulopathy (Von Willebrand disease) is a contra-indication to expectant management, but not medical management.

Oral methotrexate is incorrect as this is the medical management of ectopic pregnancies.

Salpingectomy is incorrect as this is the surgical management of a tubular ectopic pregnancy, specifically for cases where the mothers unaffected Fallopian tube is healthy.

Vacuum aspiration is a form of surgical management for miscarriages. It is incorrect as there are no contra-indications to medical management, which should therefore be tried first-line. NICE recommends medical management in preference to surgical management as it avoids the risks associated with surgery and allows the woman to feel more in control.

Wait 7-14 days is incorrect as the patient has a past medical history of a coagulopathy (Von Willebrand disease), which is a contra-indication to expectant management.

Question:

A 45-year-old woman with a diagnosis of autoimmune hypothyroidism presents for her annual review. She feels that her symptoms are well-controlled on her current dose of levothyroxine and she takes her levothyroxine regularly without any issues. She has no other medical history, takes no other regular medications and has no allergies.

Her thyroid function tests come back as follows:

Thyroid stimulating hormone (TSH) 0.25 mU/L (0.5 - 5.5)

Free thyroxine (T4) 24 pmol/L (9.0 - 18)

What complication is this patient most at risk of?

A.First degree atrioventricular heart block

B.Hyperlipidaemia

C.Insulin resistance

D.Osteoporosis

E.Weight gain

Answer:Osteoporosis

Explanation:

Over-replacement with thyroxine increases the risk for osteoporosis

Important for meLess important

The patient's thyroid function tests show high free thyroxine (T4) and low thyroid-stimulating hormone (TSH) in keeping with over replacement of thyroid hormone. The dose of levothyroxine needs to be reduced otherwise the patients will experience complications of hyperthyroidism. One of these complications is osteoporosis. This is because thyroid hormones lead to increased activity of osteoclasts and bone resorption.

First degree atrioventricular block is a consequence of hypothyroidism, not hyperthyroidism. Hypothyroidism can also cause sinus bradycardia and, if severe, cardiac failure. Conversely, the cardiac abnormality most associated with hyperthyroidism is atrial fibrillation.

Hyperlipidaemia is, again, a consequence of hypothyroidism. This is because thyroid hormones are required for the metabolism of lipids. An underactive thyroid means that lipids are metabolised more slowly and so build up in the serum.

Insulin resistance is another consequence of hypothyroidism, so would not be seen in this patient who has clinical hyperthyroidism. Much like lipids, thyroid hormones are involved in glucose metabolism. Hypothyroidism can lead to insulin resistance.

Weight gain is again associated with the slowed metabolism seen in hypothyroidism. This patient would instead be more likely to experience weight loss due to her increased thyroid hormone levels.

Question:

A 57-year-old woman undergoes a routine mammogram which shows new microcalcifications. The patient's last menstrual period was 6 years ago, she has never used hormonal contraceptives or hormone replacement therapy, and she has no other past medical history.

A biopsy is performed which shows the presence of ductal carcinoma in situ that is oestrogen receptor-positive, progesterone receptor-negative, and HER2-negative. She is offered a lumpectomy with adjuvant radiotherapy and endocrine therapy.

What is the mechanism of action of the most likely drug she will be given?

A.Agonism of the GnRH receptor

B.Antagonism of the GnRH receptor

C.Complete antagonism of the oestrogen receptor

D.Partial antagonism of the oestrogen receptor

E.Reducing peripheral synthesis of oestrogen

Answer:Reducing peripheral synthesis of oestrogen

Explanation:

Aromatase inhibitors are used in the treatment of ER +ve breast cancer in post-menopausal women

Important for meLess important

This patient has breast cancer that is oestrogen receptor-positive and is offered endocrine therapy which is most likely to be anti-oestrogen therapy. The options available are aromatase inhibitors such as anastrozole and selective oestrogen receptor modulators (SERMs) such as tamoxifen, depending on menopausal status.

Reducing peripheral synthesis of oestrogen is correct as this is the end effect of aromatase inhibitors such as anastrozole. Aromatase is a key enzyme in the conversion of androgens to oestrogen, therefore its inhibition reduces peripheral oestrogen synthesis. Aromatase inhibitors are the first-line for oestrogen receptor-positive breast cancer in postmenopausal patients such as in this scenario (as she has not had a period for 6 years), as SERMs are associated with an increased risk of postmenopausal bleeding, endometrial hyperplasia, and endometrial cancer.

Agonism of the GnRH receptor is incorrect. Examples of GnRH agonists are goserelin and leuprorelin which are typically used in uterine fibroids and prostate cancer. GnRH agonists may be used to suppress ovarian function (reducing oestrogen and progesterone synthesis and hence the risk of breast cancer development) in premenopausal patients, however, this patient is postmenopausal. Guidelines also recommend 'considering' the use of GnRH agonists in breast cancer, whereas anti-oestrogen therapies such as anastrozole and tamoxifen are used if there are no contraindications.

Antagonism of the GnRH receptor is incorrect. Examples of GnRH antagonists are cetrorelix, degarelix, and ganirelix. These may be used in female infertility, uterine fibroids, and prostate cancer, and currently play no role in the management of breast cancer.

Complete antagonism of the oestrogen receptor is incorrect as this is the mechanism of action of raloxifene, an example of a SERM. This SERM is typically used in osteoporosis or chemoprevention of breast cancer in postmenopausal women at moderate-to-high risk. Due to its complete antagonism, it is associated with a decreased risk of endometrial cancer, hence why it is indicated for this use. However, if a SERM is to be used in ongoing oestrogen receptor-positive breast cancer, and if the woman is premenopausal, tamoxifen is used instead.

Partial antagonism of the oestrogen receptor is incorrect as this is the mechanism of action of tamoxifen, an example of a SERM. This SERM is the first-line option for managing breast cancer in premenopausal women, but not in postmenopausal women. The first-line option for postmenopausal women is aromatase inhibitors which decrease the peripheral synthesis of oestrogen.

Question:

A 58-year-old woman, who is a known alcoholic, is admitted to the surgical assessment unit with acute pancreatitis.

Which of the following options is the most relevant scoring system for this patient?

A.APACHE

B.Glasgow

C.Gleason

D.Duke's

E.TNM

Answer:Glasgow

Explanation:

The Glasgow score is more specific to acute pancreatitis than the APACHE system. The other systems are irrelevant.

Question:

A 33-year-old male presents to your GP evening clinic complaining of pain in his abdomen. They have described pain which is located in the lower left abdomen which has become more severe across the day. He feels feverish, nauseous, and has vomited twice in the last hour. He cannot remember the last time he passed urine or stool, and he mentions that he has had a small painless lump on his lower left abdomen for the past month which he has not sought medical attention for.

On examination, he appears clammy and looks unwell. He is tachycardic and normotensive. His abdomen appears mildly distended and is very tender to touch. There is evidence of localised tenderness in the left iliac fossa. You also notice a lump in the left inguinal area that is 2cm x 2cm in diameter which is erythematous and is now extremely painful to touch.

What is the most appropriate next step?

A.Ask the patient to attend the emergency department

B.Ask the patient to provide you with a urine sample

C.Attempt to manually reduce the lump

D.Call 999 and arrange an urgent assessment of your patient in hospital

E.Contact the surgical registrar on-call and suggest urgent admission for an appendicectomy

Answer:Call 999 and arrange an urgent assessment of your patient in hospital

Explanation:

Whilst awaiting surgery, it is NOT recommended than an attempt is made to manually reduce strangulated inguinal hernias

Important for meLess important

The most appropriate response to this scenario is to call 999 to arrange an urgent assessment. It is clear from the scenario that this patient has an acute abdomen (severe abdominal pain, fever, localised tenderness to the left iliac fossa [LIF]). You should also be suspecting that this is a strangulated hernia, given his description of a painless abdominal lump that now shows signs of strangulation (extremely painful, erythematous, associated with peritonitis). You would also want to inform the surgical registrar on-call in advance that you are sending a patient to the hospital.

It is very important that you do not attempt to manually reduce a strangulated inguinal hernia yourself. Manually reducing a hernia that is strangulated would push necrotic bowel back into the abdomen which can make the patient deteriorate more rapidly.

Contacting the surgical registrar to discuss an appendicectomy is not appropriate, as you should be prioritising an urgent assessment for this patient instead. It is also likely that the appendix is not ruptured given the evidence pointing towards a strangulated hernia.

Asking for a urine sample would unnecessarily delay your patient getting the right assessment they need.

Question:

A 12-year-old high school pupil presents to you in GP with low mood. When you discuss the background of her mood it emerges that she has been bullied for having had sex with a 17-year-old boy in the same school. This only happened once and no alcohol or drugs were involved. She said that she wasn't forced to have sex with him and that 'it was consensual'.

What is the most appropriate immediate course of action?

A.You should disclose that this girl has been sexually active to the relevant authority

B.You must keep this consultation confidential because she consented to the sexual activity

C.You must contact the patient's mother as she is the legal guardian

D.You must ask the girl to discuss it with the police because of her age

E.You must advise the girl to have the bullying dealt with at school

Answer:You should disclose that this girl has been sexually active to the relevant authority

Explanation:

The issue of consent and confidentiality for young people around sexual issues can often be difficult, however, there is no doubt in this case.

Option 1 is the correct answer. Legally, children under the age of 13 are unable to consent to sex. As such, you should normally disclose this. Any decision to not disclose should be discussed with a named or designated doctor for child protection and should be properly documented. It is very rare that this should happen.

Option 2 is not correct because as the patient is under 13 she CANNOT consent to sexual activity.

Option 3 is not correct. Although someone will likely have to discuss what has happened with the girl's mother it is not your first and most pressing duty.

Option 4 is not correct. You have a duty to notify the relevant authority about what has happened yourself and you cannot leave it in the hands of the patient.

Option 5 is not correct. Apart from not necessarily achieving much, this option neglects your duty to report.

See 67. 0-18 years guidance: Sexual activity

http://www.gmc-uk.org/guidance/ethicalguidance/childrenguidance6469sexualactivity.asp

Question:

A 47-year-old woman complains of an itchy neck and scalp:

© Image used on license from DermNet NZ

This skin condition is though to occur as a result of a reaction to:

A.Trichophyton rubrum

B.Trichophyton schoenleinii

C.Microsporum audouinii

D.Candida albicans

E.Malassezia furfur

Answer:Malassezia furfur

Explanation:

Seborrhoeic dermatitis - an inflammatory reaction to Malassezia furfur

Important for meLess important

Question:

A 43-year-old lady presents to the emergency department with severe abdominal pain and nausea. She reports she has experienced numerous instances of biliary colic in the past, especially after eating fatty foods, but never sought medical help.

Given the likely diagnosis, which single set of results would prompt you to seek urgent senior review?

A.Ca 1.0 mmol/L, Urea 11 mmol/L, Albumin 30 g/L, Glucose 12 mmol/L

B.Ca 2.8 mmol/L, Urea 14 mmol/L, Albumin 31 g/L, Glucose 3.8 mmol/L

C.Ca 2.5mmol/L, Urea 14 mmol/L, Albumin 35 gl/L, Glucose 12 mmol/L

D.Ca 2.0 mmol/L, Urea 6 mmol/L, Albumin 45 g/L, Glucose 6 mmol/L

E.Ca 2.5 mmol/L, Urea 7 mmol/L, Albumin 55 g/L, Glucose 11 mmol/L

Answer:Ca 1.0 mmol/L, Urea 11 mmol/L, Albumin 30 g/L, Glucose 12 mmol/L

Explanation:

Whilst hypercalcaemia can cause pancreatitis, hypocalcaemia is an indicator of pancreatitis severity

Important for meLess important

Whilst hypercalcaemia can cause pancreatitis, hypocalcaemia is an indicator of pancreatitis severity.

Remember the Glasgow scale of Pancreatitis Severity (PANCREAS):

PaO2< 7.9kPa

Age > 55 years

Neutrophils (WBC > 15)

Calcium < 2 mmol/L

Renal function: Urea > 16 mmol/L

Enzymes LDH > 600IU/L

Albumin < 32g/L (serum)

Sugar (blood glucose) > 10 mmol/L

Question:

An 8-year-old boy presents with increasing jaundice over the past week. He was recently treated with nitrofurantoin for a simple urinary tract infection. On examination he is obviously jaundiced, and he is looking pale and breathless. Investigation results are as follows:

Hb 58 g/l

Platelets 250 \* 109/l

WBC 6.5 \* 109/l

A blood films demonstrates red cell fragments and Heinz bodies.

What is the most likely diagnosis?

A.Pyruvate kinase deficiency

B.Sickle cell disease

C.Glucose-6-phosphate dehydrogenase deficiency

D.Beta-thalassaemia

E.Hereditary spherocytosis

Answer:Glucose-6-phosphate dehydrogenase deficiency

Explanation:

Glucose-6-phosphate dehydrogenase deficiency is an X linked disorder affecting red cell enzymes. It results in a reduced ability of the red cells to respond to oxidative stress. Therefore, red cells have a shorter life span and are more susceptible to haemolysis, particularly in response to drugs (e.g. nitrofurantoin), infection, acidosis and certain dietary agents (e.g. fava beans).

The red cell fragments, Heinz bodies and anaemia confirm a haemolytic anaemia.

Question:

A 32-year-old woman presents to general practice requesting the progesterone-only injectable contraceptive. She says that she has used this in the past and it works very well for her. She has a past medical history of migraines with aura and irritable bowel syndrome. She is currently receiving treatment for breast cancer and is awaiting investigations for unexplained vaginal bleeding. She smokes approximately 20 cigarettes a day.

Why is this contraceptive method contraindicated?

A.Smoking >15 cigarettes a day

B.Current breast cancer

C.Migraine with aura

D.Unexplained vaginal bleeding

E.Age >30

Answer:Current breast cancer

Explanation:

Current breast cancer is a contraindication for injectable progesterone contraceptives

Important for meLess important

According to the UK medical eligibility criteria, current breast cancer is an absolute contraindication for progesterone-only injectable contraceptives.

Smoking >15 cigarettes a day is a contraindication for the combined oral contraceptive pill.

Migraine with aura is a contraindication for the combined oral contraceptive pill.

Unexplained vaginal bleeding is a contraindication for the initiation of the intrauterine device (IUD) and the intrauterine system (IUS).

Age >30 is not a contraindication for any contraceptive.

Question:

A 37-year-old woman is 32 weeks pregnant and attends a meeting with her midwife to discuss her birth plan.

Her pregnancy so far has been uncomplicated with a fundal placenta noted on ultrasound scans. She has no underlying medical conditions. The patient had one previous pregnancy two years ago and she delivered a healthy baby by low transverse caesarean section.

She is very keen to plan for a vaginal delivery this time if possible.

What information should the midwife give the patient?

A.20-25% of women in her position have a successful vaginal delivery

B.A fundal placenta is an indication for a caesarean section

C.Induced vaginal delivery at 36-37 weeks is recommended

D.Maternal age of 37 is an indication for a caesarean section

E.Planned vaginal delivery is an option from 37 weeks

Answer:Planned vaginal delivery is an option from 37 weeks

Explanation:

Planned Vaginal birth after Caesarean (VBAC) is an appropriate method of delivery for pregnant women at >= 37 weeks gestation with a single previous Caesarean delivery

Important for meLess important

A low transverse incision is the most common type of caesarean section. A single previous caesarean of this type is not a contraindication for a planned vaginal birth at 37 weeks or later in a subsequent pregnancy.

Therefore, as the mother has requested to plan for a vaginal birth planned vaginal delivery is an option from 37 weeks is appropriate advice for the midwife to give.

20-25% of women in her position have a successful vaginal delivery is incorrect. In fact 70-75% of women have a successful vaginal delivery following one previous caesarean section.

A fundal placenta refers to a placenta attached at the top of the uterus away from the cervical os. This is a good location for a placenta and not an indication for caesarean section. Previous caesarean section does increase the risk of placenta praevia, where the placenta covers the cervical os. Placenta praevia is an indication for caesarean section, but that is not the case for this patient.

Induced vaginal delivery at 36-37 weeks is not recommended in this scenario. Indications for early induction can include complications such as pre-eclampsia, but caesarean is often the preferred mode of delivery in these cases.

Maternal age of 37 is not an indication for caesarean section. While older mothers may have increased risks associated with pregnancy and birth there is no defined age cut-off above which a caesarean is indicated in absence of other concerns.

Question:

A 33-year-old female presents to the emergency department with abdominal pain. She has a past medical history of hypertension.

On examination, she has a palpable mass on the left side of her abdomen, and on auscultation of her heart, a murmur is heard. Ultrasound examination shows multiple cysts in her left kidney.

Which one of the following valvular abnormalities is commonly associated with her condition?

A.Pulmonary stenosis

B.Tricuspid regurgitation

C.Mitral stenosis

D.Mitral valve prolapse

E.Aortic stenosis

Answer:Mitral valve prolapse

Explanation:

Mitral valve prolapse is associated with polycystic kidney disease

Important for meLess important

This patient has polycystic kidney disease (PKD). Patients with polycystic kidney disease have an increased occurrence of cardiac valve abnormalities, with mitral valve prolapse and mitral regurgitation being the most common. As many as 1 in 4 adults with polycystic kidney disease develop mitral valve prolapse.

Since mitral valve prolapse is the most common valvular abnormality associated with PKD, the rest of the answers are incorrect.

Question:

An 18-year-old male started university 2-weeks ago. This is the first time he has been away from home. He presents to his GP due to an abnormal penile discharge and pain during urination. These symptoms began 1-week ago. On inspection, there is abnormal discharge around the urethral meatus.

Microscopy demonstrates that the responsible organism is an obligate intracellular bacterium.

Which organism is most likely responsible for causing the patient's symptoms?

A.Chlamydia trachomatis

B.Chlamydia psittaci

C.Neisseria gonorrhoeae

D.Herpes simplex virus

E.Treponema pallidum

Answer:Chlamydia trachomatis

Explanation:

Chlamydia is the commonest bacterial sexually transmitted disease in the UK

Important for meLess important

The commonest bacterial cause of sexually transmitted disease in the UK is C. trachomatis. It is difficult to distinguish C. trachomatis and N. gonorrhoea based on the medical history alone. Quite often, in fact, the two bacterial have an asymptomatic presentation. From the question stem, the key difference is on microscopy. Chlamydia trachomatis is an intracellular organism whereas Neisseria gonorrhoeae is not.

Chlamydia psittaci causes a pneumonia-picture, especially in individuals who own parrots, characteristically.

Herpes simplex virus and T. palladium (syphilis) would usually present with penile ulcers, not abnormal discharge.

Question:

An 82-year-old woman presents to the emergency department with new-onset confusion and lethargy. She is accompanied by her daughter, who reports that these symptoms have been present for the past 2 days.

She has a past medical history of hypertension, chronic lower back pain, and type 2 diabetes. She smokes around 15 cigarettes a day and drinks a small glass of sherry each evening.

Alongside other investigations, bedside urinalysis is performed using a dipstick kit, and a urine sample is sent for microscopy, culture and sensitivity (MCS) analysis.

Her results are as follows:

Leukocytes Negative

Nitrite Negative

Protein Negative

pH 6.7

Blood Negative

Glucose Negative

Urine MCS Hyaline casts seen on urine microscopy. No organism was cultured.

Which of the drugs that she is taking could cause these findings on urinalysis?

A.Furosemide

B.Alcohol

C.Tramadol

D.Metformin

E.Paracetamol

Answer:Furosemide

Explanation:

Hyaline casts may be seen in the urine of patients taking loop diuretics

Important for meLess important

Urinary hyaline casts are usually an innocuous finding on urine microscopy, especially in conjunction with a negative urine dipstick, and may be caused by loop diuretics like furosemide.

Hyaline casts may also be seen in healthy patients not taking any medication, especially after strenuous exercise, as well as during intercurrent illness - as could be the case in this patient.

None of the other drugs listed directly cause the formation of urinary casts.

In this patient, we were screening for urinary tract infection (UTI) as a cause of delirium. Hyaline casts seen on microscopy with no other positive findings, particularly in a patient taking a loop diuretic, make a UTI extremely unlikely.

Question:

A 28-year-old male presents to the Emergency Department with 12 hours of worsening agitation, restlessness, vomiting, diarrhoea and tremor. On examination, he has hyperthermia, tachycardia, muscle rigidity, hyperreflexia and myoclonus, particularly pronounced in the lower extremities. He has a past medical history of depression for which he takes fluoxetine. He recently started taking St John's wort to help his depression.

What is the most likely diagnosis?

A.Anticholinergic toxicity

B.Malignant hyperthermia

C.Meningitis

D.Neuroleptic malignant syndrome

E.Serotonin syndrome

Answer:Serotonin syndrome

Explanation:

St. John's Wort may interact with SSRIs to cause serotonin syndrome

Important for meLess important

Serotonin syndrome is often misdiagnosed for neuroleptic malignant syndrome (NMS). However, NMS develops over days to weeks, whereas serotonin syndrome develops over 24 hours. NMS is more characterised by rigidity and bradyreflexia. Hyperreflexia and myoclonus are rare in NMS.

Malignant hyperthermia occurs in susceptible individuals exposed to halogenated volatile anaesthetics and depolarising muscle relaxants (eg, succinylcholine). It classically presents with increased concentrations of end-tidal carbon dioxide, rigor mortis-like muscle rigidity, tachycardia, hyperthermia, and acidosis.

Meningitis typically presents with fever, nuchal rigidity and a change in mental status, usually of sudden onset. The most common clinical features include a severe headache, which was not part of this presentation, fever greater than 38ºC, a stiff neck, Glasgow Coma Score < 14 and nausea.

Anticholinergic toxicity typically presents with hyperthermia, agitation, altered mental status, mydriasis, dry mucous membranes, urinary retention and decreased bowel sounds. Muscular tone and reflexes are normal in anticholinergic poisoning.

Serotonin syndrome is a life-threatening condition associated with increased serotonergic activity in the central nervous system (CNS). It is seen with therapeutic medication use and inadvertent interactions between drugs for example, between St Johns wort and SSRIs. It typically presents with hyperthermia, agitation, dilated pupils, tremor, deep tendon hyperreflexia, bilateral Babinski signs, nausea and vomiting with onset within 24 hours.

Question:

A 36-year-old woman attends a review with her doctor following investigations for a 5 month period of hot flushes and amenorrhoea.

The patient has previously been informed that the results of a series of hormone profile tests suggest that she is experiencing premature menopause. The purpose of this review is to discuss management options in regards to hormone replacement therapy (HRT). Following discussion, the patient decides to opt for a Mirena intrauterine system (IUS), with additional daily oestrogen.

How long should the patient be advised to continue with HRT?

A.Life-long

B.1 year from starting

C.Until the patient has been amenorrhoeic for 1 year

D.Until the age of 45

E.Until the age of 50

Answer:Until the age of 50

Explanation:

If women take HRT for premature menopause it should be continued until the age of 50 years

Important for meLess important

Premature menopause is ovarian failure occurring before the age of 40. Half of all cases are idiopathic, with other causes including menopause occurring following pelvic radiotherapy or oophorectomy. In the case of premature menopause, a patient should continue with HRT until the age of 50. This is largely to minimise the risk of osteoporosis that occurs with premature menopause. In the case provided, the women will be receiving oestrogen for symptom control from her daily oral oestrogen. She will also be receiving progesterone from her IUS, reducing the risk of endometrial malignancy from unopposed oestrogen.

Life-long prescription of HRT is not recommended for patients experiencing premature menopause. They should continue HRT until they are 50-years old, when their oestrogen levels would be expected to fall.

Only providing HRT for 1 year in this patient would leave her at a higher risk of osteoporosis.

Again, this patient has already been amenorrhoeic for at least 5 months. Providing her with only 7 months of hormone replacement would leave her at significant risk of osteoporosis.

Normally, menopause occurs at the age of 45 or over. However, women who experience premature menopause are at increased risk of osteoporosis compared to women who experience menopause at the age of 45. Therefore, HRT should be continued in these women until the age of 50.

Question:

A 78-year-old woman presents to the emergency department with a headache which has been present for the last week. She describes pain over the left temple, which is worse when she touches her head or brushes her hair, and aching in her jaw when eating. She is now particularly worried as she recently experienced a temporary loss of vision for around 30 seconds which she describes as a 'dark curtain descending'.

What is the most likely finding on fundoscopy?

A.Cherry red spot on the macula

B.Cupping of the optic disc

C.Macula oedema

D.Swollen pale disc with blurred margins

E.Yellow drusen and sub-retinal haemorrhage

Answer:Swollen pale disc with blurred margins

Explanation:

Anterior ischemic optic neuropathy - fundoscopy typically shows a swollen pale disc and blurred margins

Important for meLess important

Swollen pale disc with blurred margins is correct. This is a sign of anterior ischaemic optic neuropathy (AION) caused by a loss of blood supply to the optic nerve. AION is the most common ophthalmic complication of temporal arteritis as the temporal artery supplies the optic nerve and is important to recognise on fundoscopy as it requires urgent IV steroids to prevent permanent visual loss.

Cherry red spot on the macula is incorrect. This is a sign of central retinal artery occlusion. The central retinal artery is a branch of the ophthalmic artery unaffected by temporal arteritis.

Macula oedema is incorrect. Swelling and thickening of the macula occur due to fluid and/or protein accumulation beneath the retina. This can be found in many conditions including diabetic retinopathy, glaucoma, age-related macular degeneration and uveitis but it is not typically associated with temporal arteritis.

Cupping of the optic disc is incorrect. This is a sign of chronic open-angle glaucoma due to long-term destruction of the optic nerve secondary to high intraocular pressure. It does not occur in temporal arteritis, which tends to be more acute.

Yellow drusen and sub-retinal haemorrhage is incorrect. This is a sign of wet macular degeneration with new blood vessel growth over the macula. It is not associated with temporal arteritis.

Question:

A 34-year-old woman presents with tiredness, weight gain and irregular periods. She is noted to have abnormal thyroid function tests, but all other blood tests are normal. She is not pregnant or planning to conceive. Her vital observations and neck examination are normal. Her pelvic ultrasound is unremarkable. Thyroid tests are repeated 3 months later.

Initial: Result Reference Range

Thyroid-stimulating hormone (TSH) 6.4mU/L (0.5-5.5)

Free thyroxine (FT4) 10.4pmol/L (9.0 - 18)

3 months later:

TSH 6.1mU/L (0.5-5.5)

FT4 11pmol/L (9.0 - 18)

Thyroid peroxidase antibodies +ve

What is the best management option?

A.Arrange routine referral to endocrinology

B.Arrange urgent referral to endocrinology

C.Monitor and arrange repeat thyroid function tests in 1 year

D.No further action required

E.Offer a 6-month trial of levothyroxine

Answer:Offer a 6-month trial of levothyroxine

Explanation:

Subclinical hypothyroidism with TSH level of level is 5.5 - 10mU/L: offer patients < 65 years a 6-month trial of thyroxine if TSH remains at that level on 2 separate occasions 3 months apart and they have hypothyroidism symptoms

Important for meLess important

Offer a 6-month trial of levothyroxine is correct. She has a diagnosis of subclinical hypothyroidism. As per NICE guidelines, levothyroxine should be offered to adults less than 65 years of age provided their TSH level is above the reference range but lower than 10 mU/L, T4 is within the reference range on 2 separate occasions 3 months apart, and there are symptoms of hypothyroidism. Tiredness, weight gain and irregular periods are possible symptoms of hypothyroidism, and therefore she fulfils the criteria for offering treatment. Levothyroxine should also be offered if the TSH level is greater than 10 mU/L and T4 level is within the reference range on 2 separate occasions 3 months apart.

Arrange a routine referral to endocrinology is incorrect. Her condition can be appropriately managed in primary care. As per NICE guidelines, referral criteria include suspected subacute thyroiditis; having a goitre, nodule, or structural change in the thyroid gland; having suspected associated endocrine disease, such as Addison's disease; is female and planning a pregnancy; having atypical or difficult to interpret TFTs or has a suspected underlying cause of subclinical hypothyroidism, such as drug treatment with amiodarone or lithium. A referral should therefore be considered in this case if she was planning a pregnancy.

Arrange urgent referral to endocrinology is incorrect. She does not meet referral criteria to endocrinology and can be appropriately managed in primary care.

Monitoring and arranging to repeat her thyroid function tests in 1 year is incorrect as she should be offered a trial of levothyroxine therapy based on her blood results and ongoing symptoms.

No further action required is also incorrect, as she should be offered a trial of levothyroxine therapy based on her blood results and ongoing symptoms.

Question:

A 75-year-old woman who has been in hospital for the treatment of community acquired pneumonia develops new shortness of breath. CT pulmonary angiogram reveals a right sided pulmonary embolus.

What will the arterial blood gas most likely show?

Metabolic acidosis

3%

Metabolic alkalosis

2%

Respiratory acidosis

34%

Respiratory alkalosis

57%

Mixed respiratory and metabolic acidosis

4%

Pulmonary embolism causes hyperventilation, causing a drop in arterial carbonic dioxide partial pressure and thus alkalosis.

Question:

A 76-year-old gentleman presents to the emergency department. His wife is struggling to cope with him. The wife tells you that he has been getting confused and more forgetful since last month. She is worried as he's been more unsteady on his feet and has fallen in the last week, she was unable to help him up as he is too heavy. When you examine him you notice that he has been incontinent of urine.

What is the most likely diagnosis?

A.Delirium

B.Normal pressure hydrocephalus

C.Alzheimer's dementia

D.Urinary tract infection

E.Lewy body dementia

Answer:Normal pressure hydrocephalus

Explanation:

Urinary incontinence + gait abnormality + dementia = normal pressure hydrocephalus

Important for meLess important

The patient is displaying the classic triad of normal pressure hydrocephalus; dementia, ataxia and urinary incontinence.

Alzheimer's dementia would be a slower deterioration. Patients with dementia are also at a higher risk of falls and can be incontinent but this tends to occur later.

Lewy body dementia also would have a slower onset and non of the lewy body dementia specific symptoms are present like visual hallucinations.

Delirium has an acute onset and is not a chronic disease.

Unlikely to be a urinary tract infection as there no signs or symptoms of an infection and his confusion has been getting worse for a whole month so it is unlikely to be an acute infection.

Question:

A 38-year-old woman attends the emergency department with a 3-day history of a worsening headache. She reports feeling generally lethargic for the last 10 days with nausea and occasional episodes of vomiting. There is no past medical history of note.

On examination, she is afebrile. Her heart rate is 104bpm with a blood pressure of 92/53mmHg. Fundoscopic examination reveals papilloedema. Her BMI is 35kg/m².

Venous blood gas:

pH 7.38 (7.35 - 7.45)

Bicarbonate 24 mmol/L (22 - 29)

Chloride 99 mmol/L (95 - 108)

Lactate 4.2 mmol/L (0.5 -2.2)

Glucose 36 mmol/L (4 - 7)

Laboratory tests:

Hb 120 g/L (115 - 160)

Platelets 256 \* 109/L (150 - 400)

WBC 6.1 \* 109/L (4.0 - 11.0)

Na+ 152 mmol/L (135 - 145)

K+ 3.6 mmol/L (3.5 - 5.0)

Urea 9.5 mmol/L (2.0 - 7.0)

Creatinine 149 µmol/L (55 - 120)

CRP 4 mg/L (< 5)

What is the most likely diagnosis?

A.Cushing's disease

B.Diabetic ketoacidosis

C.Hyperosmolar hyperglycaemic state

D.Idiopathic intracranial hypertension

E.Meningitis

Answer:Hyperosmolar hyperglycaemic state

Explanation:

HHS or DKA? – HHS has no acidosis/significant ketosis, the history is longer and the glucose is often significantly raised eg >30mmol/L

Important for meLess important

This patient has a hyperosmolar hyperglycaemic state (HHS). The diagnostic criteria for HHS include hypovolaemia, hyperglycaemia (blood sugar > 30mmol/L) and a serum osmolality > 320mosmol/kg. This patient's estimated serum osmolality is (2x152) + 36 + 9.5 = 349.5mosmol/kg, with a blood sugar of 36mmol/L and therefore meeting the criteria. Clinical features are commonly secondary to hypovolaemia and include fatigue, lethargy, altered consciousness, hypotension and tachycardia. There is an increased risk of thrombosis and several different organ systems can be affected including the central nervous system with symptoms including headache, blurred vision and papilloedema on examination. The treatment of choice includes intravenous fluid replacement and close monitoring of serum osmolality.

Cushing's disease is an endocrine disorder characterised by excess glucocorticoids. Patients are more likely to be female and often have a raised BMI, such as this patient. Whilst Cushing's disease can explain this patient's hyperglycaemia, blood glucose readings tend not to be as raised as they are in this scenario and it does not explain her history of headaches or nausea and vomiting.

The most important differential diagnosis to consider for a patient presenting with hyperglycaemia is diabetic ketoacidosis. Diabetic ketoacidosis presents similarly to this patient with fatigue, lethargy and signs of hypovolaemia such as this patient's tachycardia and hypotension. Although ketone levels are not given in this question, the normal pH and bicarbonate levels allow us to know that this patient is not acidotic and, instead, point to the diagnosis of HHS.

Idiopathic intracranial hypertension (IIH) is a condition commonly causing headaches and blurred vision. On examination, papilloedema or an enlarged blind spot may be seen. It is most commonly associated with young overweight females. Whilst there are similarities to the presentation of this patient, IIH does not explain this patient's tachycardia and hypotension, nor her laboratory findings and suggests that there is an alternative diagnosis.

Meningitis presents as headache, fever and meningism with additional symptoms including photophobia, nausea and vomiting. Although this patient is complaining of a severe headache associated with nausea and vomiting, her inflammatory markers in her blood tests are normal and there is no history of fever. Furthermore, the presence of hyperglycaemia and papilloedema on examination make meningitis a less likely diagnosis.

Question:

A 68-year-old woman attends surgery complaining of gradually worsening vision. For many months she has struggled to recognise faces and discern colours reliably. The patient also reports her central vision appears somewhat blurred. She smokes 10 cigarettes per day and has a blood pressure of 124/76 mmHg. Recent blood tests are unremarkable including HbA1c of 38 mmol/mol.

Given the likely diagnosis, what finding is to be expected when viewing the patient's macula on fundoscopy?

A.Blot haemorrhages

B.Choroidal neovascularisation

C.Cotton wool spots

D.Drusen

E.Microaneurysms

Answer:Drusen

Explanation:

Drusen = Dry macular degeneration

Important for meLess important

Dry macular degeneration is one of the leading causes of visual loss in patients over 50 years of age. The formation of extracellular lipid and protein debris, termed drusen, around the macula is highly suggestive of this condition. In contrast, choroidal neovascularisation is seen in wet macular degeneration.

Blot hemorrhages and cotton wool spots are generally seen in hypertensive retinopathy, whilst microaneurysms can signify either hypertensive retinopathy or diabetic retinopathy. The presence of these findings in the above patient is less likely given her normal blood pressure and HbA1c.

Question:

A 64-year-old woman who is reviewed due to multiple non-healing leg ulcers. She reports feeling generally unwell for many months. Examination findings include a blood pressure of 138/72 mmHg, pulse 90 bpm, pale conjunctivae and poor dentition associated with bleeding gums. What is the most likely underlying diagnosis?

A.Thyrotoxicosis

B.Vitamin B12 deficiency

C.Vitamin C deficiency

D.Diabetes mellitus

E.Sarcoidosis

Answer:Vitamin C deficiency

Explanation:

Question:

Mr Smith is 59 year old man who presents to the walk-in clinic complaining of central chest pain that is sharp in nature and is associated with a low-grade fever of 37.9ºC. He complains that it is worse when he goes to bed at night and better when he sits forward. He denies any recent infections or trauma to the chest. Upon reading the patient's notes the following entry is found dated 2 weeks previously. It reads as follows:

Mr X presented to the emergency department with central crushing chest pain that radiated to his jaw that started 40 minutes ago. The admitting ECG revealed marked ST-elevations in leads II, III, and AVF. Mr X was sent directly for percutaneous coronary intervention where a stent was inserted into the right coronary artery...

Given the history and the current presenting complaint, what is the most likely diagnosis?

A.Ventricular free wall rupture

B.Myocardial infarction

C.Dressler syndrome

D.Viral pericarditis

E.Pneumonia

Answer:Dressler syndrome

Explanation:

The notes suggest that 2 weeks after a confirmed myocardial infarction, Mr X developed chest pain suggestive of pericarditis.

Dressler syndrome fits the presentation and the time frame in this instance. It is a condition characterised by an autoimmune response mounted by the body after injury to myocardium or pericardium, in the case of this gentleman - a myocardial infarction. The condition comprises of fever, pericarditis, pleuritic pain +/- pericardial effusion. Dressler syndrome usually occurs between 2 -3 weeks after the initial injury, but can also present a few months later.

As there is no history of recent infections, viral pericarditis and pneumonia are less likely. Free wall ruptures are extremely severe complications after a myocardial infarction which often results in death.

Question:

A 55-year-old woman is seen in the neurology clinic. Her posture is stooped and she moves with a slow, shuffling gait. She also freezes when approaching doorways or trying to turn around. Her face is expressionless and when she speaks her voice is quiet and lacks inflection. The consultant notes a new bilateral pill-rolling tremor in the hands that is exacerbated on distraction.

Her past medical history is significant for schizophrenia and type 2 diabetes mellitus.

What is the most likely diagnosis?

A.Cerebellar lesion

B.Drug-induced parkinsonism

C.Alcohol-induced tremor

D.Idiopathic Parkinson's disease

E.Essential tremor

Answer:Drug-induced parkinsonism

Explanation:

Symmetrical tremor is rarely caused by idiopathic Parkinson's disease

Important for meLess important

A unilateral resting tremor with bradykinesia and other classic symptoms and signs is strongly associated with idiopathic Parkinson's disease. According to the article below, 50-70% of patients with drug-induced Parkinsonism will have a symmetrical tremor. The history of schizophrenia makes antipsychotic use likely, and these drugs can precipitate Parkinsonism. The atypical presentation of a younger female patient also makes a secondary drug-related cause more likely than idiopathic Parkinsonism.

A cerebellar lesion would classically give an intention tremor not a resting tremor.

There is no history of alcohol intake to suggest an alcohol-induced tremor

An essential tremor is unlikely to be new-onset at age 70, and there is often a family history.

Further reading on the presentation of Parkinson's and drug-induced Parkinsonism:

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3325428/

Question:

A 68-year-old male presents with headache and double vision. On examination you note pigmentation of his skin and a right CN VI palsy. He has a past medical history of a bilateral adrenalectomy 1 year ago for Cushing's disease. An urgent MRI demonstrates a pituitary tumour that is invading the right cavernous sinus.

What is the most likely diagnosis?

A.Addison's disease

B.Recurrence of Cushing's disease

C.Prolactinoma

D.Craniopharyngioma

E.Nelson's syndrome

Answer:Nelson's syndrome

Explanation:

Nelson's syndrome occurs due to rapid enlargement of a pituitary corticotroph adenoma (ACTH producing adenoma) that occurs after the removal of both adrenal glands (bilateral adrenalectomy) which is an operation used for Cushing's syndrome. Removal of both adrenal glands eliminates the production of cortisol, and the lack of cortisol's negative feedback can allow any pre-existing pituitary adenoma to grow unchecked. Continued growth can cause mass effects due to physical compression of brain tissue. Increased production of adrenocorticotrophic hormone (ACTH) can result in increased melanocyte stimulating hormone (MSH) which can result in hyperpigmentation. Nelson's syndrome is now rare because bilateral adrenalectomy is now only used in extreme circumstances. After bilateral adrenalectom follow-up should include awareness of Nelson's syndrome. Monitoring of ACTH level and pituitary MRI are recommended 3-6 months after surgery and regularly thereafter.

Question:

Doreen, a 78-year-old woman comes to the surgery for a medication review. Her past medical history includes well-controlled osteoarthritis, chronic obstructive pulmonary disease and chronic kidney disease (CKD). She currently takes Symbicort (budesonide with formoterol) 200/6, salbutamol and uses senna and naproxen tablets as required.

A recent urine sample has shown that her albumin:creatinine ratio (ACR) is 87mg/mmol. Another sample from 6 months prior showed that her ACR was 79mg/mmol. Her serum urea and creatinine results have also showed a mild deterioration over the last 6 months.

Her blood pressure in clinic today is 129/76mmHg.

Which of the following medication changes would you advise?

A.Start ramipril and atorvastatin, consider alternatives to naproxen

B.Start atorvastatin and consider alternatives to naproxen

C.Stop naproxen

D.Start ramipril

E.Start ramipril, stop naproxen

Answer:Start ramipril and atorvastatin, consider alternatives to naproxen

Explanation:

Patients with chronic kidney disease should be started on an ACE inhibitor if they have an ACR > 30 mg/mmol

Important for meLess important

Polypharmacy and multi-morbidity are becoming increasing problems in the general population and such consultations can be challenging. NICE guidelines recommend prescribing an angiotensin converting enzyme (ACE) inhibitor to all patients with chronic kidney disease (CKD) who have a urinary ACR or 70mg/mmol or more. Lipid-lowering therapy with a statin is also recommended for all patients with CKD for the primary or secondary prevention of cardiovascular disease.

Given that there has been some decline in her renal function, stopping naproxen may be advisable as this could be contributing to the decline. However, this has to be balanced against the symptoms and functional impairment that her osteoarthritis is causing and the alternative treatments she could try for this. Therefore, starting ramipril and atorvastatin and considering alternatives to naproxen is the correct answer.

The second option is only partially correct as ramipril is also advised in CKD with this level of proteinuria regardless of blood pressure.

The third option does not advise ramipril or atorvastatin.

The fourth and fifth options do not advise atorvastatin. The decision whether or not to stop naproxen use altogether may vary between professionals depending on their clinical judgement, the patient's preferences and how often it is used.

Question:

A 69-year-old male presents to the emergency department with acute right loin pain which has gotten progressively worse over the last couple of hours. On examination, his heart rate is 78 beats per minute, respiratory rate is 19 breaths per minute, blood pressure is 130/85 mmHg, and temperature is 36.6 ºC.

The abdomen is soft and non-tender with a bulge noted in the groin region superior and medial to the pubic tubercle which is unable to be pushed back in. Bowel sounds are present.

Given the patient's presentation, what is the most likely diagnosis?

A.Femoral incarcerated hernia

B.Femoral strangulated hernia

C.Inguinal incarcerated hernia

D.Inguinal strangulated hernia

E.Obturator incarcerated hernia

Answer:Inguinal incarcerated hernia

Explanation:

If a hernia cannot be reduced it is referred to as an incarcerated hernia - these are typically painless

Important for meLess important

An inguinal incarcerated hernia is the correct option. An incarcerated hernia occurs when herniated tissue becomes trapped and cannot be reduced back into place. This leads to pain with no systemic features. It can later develop into strangulation if the blood supply of the herniated tissue is compromised. A tender, distended abdomen with absent bowel sounds indicates a strangulated hernia. As our patient has localised pain, is haemodynamically stable and has bowel sounds present on auscultation this would be unlikely to be a strangulated hernia.

Femoral hernias are inferior and lateral to the pubic tubercle, making the option of an incarcerated femoral hernia incorrect. The hernia is incarcerated but it is inguinal rather than femoral.

A femoral strangulated hernia is incorrect. Given the absence of systemic features and normal vital signs, the hernia is unlike to be strangulated. Additionally, femoral hernias are inferior and lateral to the pubic tubercle, whilst inguinal are medial and superior.

The lack of systemic features is the key for differentiating between an incarcerated or a strangulated hernia. This patient's vital signs are normal. Heart rate and respiratory rate are slightly increased as the patient is in acute pain. Normal vitals coupled with the positioning of it indicates that the hernia is likely to be an inguinal incarcerated hernia, but not a strangulated one.

Obturator incarcerated hernia is also an incorrect choice. Obturator hernias will usually present with intestinal obstruction and more than 50% are strangulating. It is also never externally visible nor palpable making this an incorrect option.

Question:

A 72-year-old man presents to the emergency department reporting new sudden-onset double vision, sensitivity to light, and weakness in his arms and legs. He has a past medical history of atrial fibrillation and takes apixaban, but has been forgetful with taking his medication over the last few months.

On examination, left ptosis is observed and the weakness of his arms and legs is limited to his right side. His left pupil appears to be dilated and fixed.

His capillary blood glucose and oxygen saturations are normal, and a non-contrast CT head is ordered.

What is the most likely diagnosis?

A.Lateral medullary syndrome (Wallenberg syndrome)

B.Lateral pontine syndrome (Marie-Foix syndrome)

C.Locked-in syndrome

D.Ventral midbrain syndrome (Weber syndrome)

E.Ventral pontine syndrome (Millard-Gubler syndrome)

Answer:Ventral midbrain syndrome (Weber syndrome)

Explanation:

Weber's syndrome is a form of midbrain stroke characterised by the an ipsilateral CN III palsy and contralateral hemiparesis

Important for meLess important

Ventral midbrain syndrome (Weber syndrome) is correct. This occurs as a result of occlusion to the branches of the posterior cerebral artery that supply the ventral midbrain. Without knowing the name of the syndrome we can work this out based on the anatomy of the midbrain. In the ventral midbrain, we have the oculomotor nucleus and nerve, and the uncrossed corticospinal tract fibres (within the cerebral peduncle). Therefore, occlusion of the arteries that supply this area will cause an ipsilateral oculomotor nerve palsy and contralateral hemiparesis.

Lateral pontine syndrome (Marie-Foix syndrome) is incorrect. The oculomotor nerve does not run within the pons and therefore would be unaffected by an infarct to this area. As the facial nerve nucleus is situated within the pons, we would expect to see ipsilateral facial muscle weakness in this condition. Additionally, the vestibulocochlear nerve nuclei may be affected, thus causing ipsilateral vertigo and hearing loss.

Ventral pontine syndrome (Millard-Gubler syndrome) is incorrect. The oculomotor nerve does not run within the pons and therefore would be unaffected by an infarct to this area. As the facial nerve nucleus is situated within the pons, we would expect to see ipsilateral facial muscle weakness in this condition.

Lateral medullary syndrome (Wallenberg syndrome) is incorrect. The oculomotor nerve does not run within the medulla. As the nucleus ambiguus is situated here, we would expect to see signs of dysphagia and dysphonia.

Locked-in syndrome is incorrect. This results in paralysis of all voluntary muscles, which is not evident in this question.

Question:

A 54-year-old man with a history of hypertension comes for review. He currently takes lisinopril 10mg od, simvastatin 40mg on and aspirin 75mg od. His blood pressure is well controlled at 124/76 mmHg but he also mentions that he is due to have a tooth extraction next week. What advice should be given with regards to his aspirin use?

A.Take aspirin as normal but take tranexamic 1g tds acid 24 hours before and after procedure

B.Stop 72 hours before, restart 24 hours after procedure

C.Stop 24 hours before, restart 12 hours after procedure

D.Take aspirin as normal

E.Stop 48 hours before, restart 24 hours after procedure

Answer:Take aspirin as normal

Explanation:

In the BNF section 'Prescribing in dental practice' it advises that patients in this situation should continue taking anti-platelets as normal

Question:

A 25-year-old woman with a history of end-stage renal disease secondary to focal segmental glomerulosclerosis presents to the Emergency Department. For the past 12 months she has used Continuous Ambulatory Peritoneal Dialysis (CAPD). She feels generally unwell with abdominal pain and a fever. She also describes her last bag as being 'cloudy'. Which organism is most likely to be responsible for this presentation?

A.Streptococcus pyogenes

B.Enterococcus

C.Staphylococcus epidermidis

D.Streptococcus agalactiae

E.Escherichia coli

Answer:Staphylococcus epidermidis

Explanation:

Coagulase-negative Staphylococcus is the most common cause of peritonitis secondary to peritoneal dialysis

Important for meLess important

Question:

A 75-year-old woman is brought to the urgent care centre by her son who reports that she has become increasingly confused and forgetful over the last few months. During this time, she has also become unsteady on her feet.

Upon examination, she scores 17/30 on the Mini-Mental State Examination and is found to have a slow, broad-based gait. She was also found to experience urinary incontinence on examination.

In keeping with the most likely diagnosis, what is neuroimaging most likely to show?

A.Hyperdense biconvex area

B.Midline shift

C.Normal scan

D.Sulcal widening

E.Ventriculomegaly out of proportion to sulcal enlargement

Answer:Ventriculomegaly out of proportion to sulcal enlargement

Explanation:

Normal pressure hydrocephalus neuroimaging findings: ventriculomegaly in the absence of, or out of proportion to, sulcal enlargement

Important for meLess important

Ventriculomegaly out of proportion to sulcal enlargement is the correct option. This patient with the triad of urinary incontinence, cognitive impairment, and gait disturbance has normal pressure hydrocephalus. It occurs when there is a build-up of cerebrospinal fluid in the ventricles, such as due to impaired cerebrospinal fluid absorption at the arachnoid granulations. Normal pressure hydrocephalus presents with ventriculomegaly out of proportion to sulcal enlargement.

The other options are incorrect.

A hyperdense biconvex area is incorrect as it refers to the findings associated with an extradural haematoma on a computerised tomography scan. This patient does not have an extradural haematoma given the lack of trauma history, and the symptoms better suit a diagnosis of normal pressure hydrocephalus.

Midline shift is incorrect as it occurs in the setting of raised intracranial pressure, such as due to a haemorrhage. This patient has normal pressure hydrocephalus, and so is unlikely to experience a midline shift.

A normal scan is incorrect as the presence of excess cerebrospinal fluid will present as ventriculomegaly.

Sulcal widening is incorrect as although it can occur as a part of the normal ageing process, the patient's current pathology is associated with the presence of ventriculomegaly, which presents with comparatively minimal sulcal widening.

Question:

A 21-year-old man gets an elbow to the ribs when playing football. His ribs are sore at the time, but he feels better now, but he goes to the emergency department as a precaution, and receives a chest x-ray. The chest x-ray shows a 1.5cm pneumothorax. He is previously fit and well with no medical history of note, and currently has a NEWS score of 0.

What is the most appropriate management for this man?

A.Admit and observe

B.Aspirate

C.Chest drain insertion

D.Discharge and review

E.Emergency needle thoracentesis

Answer:Discharge and review

Explanation:

Management in primary pneumothorax without shortness of breath, and <2cm in size, is discharge and review

Important for meLess important

Management in primary pneumothorax without shortness of breath, and <2cm in size, is discharge and review. If this man had a larger pneumothorax or was short of breath, aspiration should be attempted, and if this failed, a chest drain should be considered. Needle thoracentesis should only be done in tension pneumothorax.

Question:

A 58-year-old man is admitted with pneumonia. He drinks 20 units of alcohol per day. His liver function is normal.

Appropriately 12 hours into his admission he becomes unwell.

His observations are shown below:

Respiratory rate 18 breaths/minute

Oxygen saturations 96%

Blood pressure 123/76 mmHg

Heart rate 106 bpm.

Capillary blood glucose 4.1 mmol/L

An ECG shows sinus tachycardia at a rate of 103 bpm.

On examination, he appears tremulous and sweaty and complains of feeling anxious.

What is the most appropriate management?

A.250ml 10% glucose IV

B.Chlordiazepoxide regimen and regular high strength IM B vitamin replacement

C.Regular high strength IM B vitamin replacement

D.Stat dose of bisoprolol

E.Stat dose of lorazepam and regular high strength IM B vitamin replacement

Answer:Chlordiazepoxide regimen and regular high strength IM B vitamin replacement

Explanation:

Chlordiazepoxide or diazepam are used in the treatment of delirium tremens/alcohol withdrawal

Important for meLess important

Chlordiazepoxide regimen and regular high strength IM B vitamin replacement is correct. This patient is acutely withdrawing from alcohol. Symptoms usually begin 12 hours following reduction/cessation of alcohol intake. This patient will be undergoing assisted alcohol withdrawal in the inpatient setting, and as such will require prophylaxis of Wernicke's encephalopathy also.

250ml 10% glucose IV is incorrect, as the patient is not hypoglycaemia.

Regular high strength IM B vitamin replacement alone is incorrect, as the patient will require a benzodiazepine regimen for alcohol withdrawal also.

Stat dose of bisoprolol is incorrect. The patient is in sinus tachycardia due to the alcohol withdrawal so bisoprolol will not treat the problem.

Stat dose of lorazepam and regular high strength IM B vitamin replacement is incorrect. Lorazepam or oxazepam are sometimes used in alcohol withdrawal where there is evidence of alcoholic liver disease but this patient has documented normal LFTs. Also, a stat dose would not be sufficient to treat his alcohol withdrawal and he will require a weaning regimen.

Question:

A 32-year-old comes to the GP following a positive pregnancy test. Her last menstrual period was 7 weeks ago. This is the first time she has been pregnant. You review her medical and family history and her concerns. She has systemic lupus erythematosus (SLE) and asthma. You counsel her about vitamin D and folic acid supplements and ask her to arrange a booking appointment with the midwife.

What other advice listed below would be appropriate to provide?

A.No further actions required

B.To stop taking corticosteroid inhaler for duration of pregnancy

C.To take low-dose aspirin from 12 weeks to term of pregnancy

D.To take low-dose aspirin from now until term of pregnancy

E.To take prophylactic dose low-molecular-weight heparin (LMWH) from 36 weeks of pregnancy

Answer:To take low-dose aspirin from 12 weeks to term of pregnancy

Explanation:

Women with autoimmune conditions such as SLE or antiphospholipid syndrome are at high risk of pre-eclampsia (and should receive 75 mg of aspirin daily)

Important for meLess important

This patient is at high risk of pre-eclampsia due to the presence of SLE (and additional risk in first pregnancy), and therefore she should be advised to take 75mg aspirin from 12 weeks to the term of pregnancy. A referral to the obstetric medicine team may also be appropriate for closer monitoring of the pregnancy. Low-dose aspirin (75-150mg) is advised from the start of the second trimester until the delivery of the baby.

No further actions required is incorrect. This patient has an autoimmune disease which puts her at high risk of pre-eclampsia and therefore she should be prescribed low-dose aspirin from 12 weeks of pregnancy through to delivery of the baby.

To stop taking corticosteroid inhaler for duration of pregnancy is incorrect. Asthma inhalers, including corticosteroid preventer inhalers, are safe to take in pregnancy and should be continued. Stopping these puts the patient at risk of asthma complications.

To take low-dose aspirin from now until term of pregnancy is incorrect. She has SLE and is therefore at high risk of pre-eclampsia however aspirin therapy would be indicated from 12 weeks. A referral to obstetric medicine would be appropriate in addition.

To take prophylactic dose low-molecular-weight heparin from 36 weeks of pregnancy is incorrect. Whilst this patient is likely at risk for venous thromboembolism (VTE) in pregnancy due to SLE, treatment would be started immediately or from 28 weeks gestation (rather than 36 weeks). The information to calculate VTE risk is not all provided in the stem and a more comprehensive risk assessment would be necessary. Whilst this patient is at intermediate risk for venous thromboembolism (VTE) in pregnancy due to SLE, the decision to initiate LMWH therapy should be made by the obstetric team. A referral to obstetric medicine would therefore be appropriate.

Question:

You review a femoral X-ray of a 13-year-old boy which you requested yesterday. He presented with bony pain in his distal femur which had been constant over 1 month. The X-ray shows medullary and cortical bone destruction of the distal femur. How should this X-ray be followed up?

A.Prescribe alendronate

B.Ensure patient is seen by a specialist within 2 weeks

C.Prescribe vitamin D and calcium

D.Ensure patient is seen by a specialist within 48 hours

E.Refer directly for a bone marrow biopsy

Answer:Ensure patient is seen by a specialist within 48 hours

Explanation:

Consider a very urgent (<48hr) referral for specialist assessment of children and young people with an X‑ray which could suggest bone sarcoma

Important for meLess important

This child has presented with symptoms suspicious of an osteosarcoma. He has been urgently investigated for this as should have been inferred by the fact that you only ordered an X-ray yesterday and you already have the results. Bony destruction is clearly not normal and is a typical finding of an osteosarcoma. Hence according to the NICE guidelines, this child should be urgently referred to see a specialist within 48 hours. The typical referral time for suspected cancer in children is 48 hours rather than the 2-week pathway typically used for adults. Vitamin D, calcium and alendronate are medications used to treat osteoporosis, which is not likely to be the primary cause of this child's X-ray, hence making these incorrect. A bone marrow biopsy will likely be requested by the specialists if required and it would not be suitable to investigate this from the GP surgery.

Question:

A 28-year-old G4P3 woman presents with a lump in the breast, having ceased breastfeeding her youngest child one week prior. Her past medical history is significant for previous episodes of mastitis when breastfeeding her older children. On examination the lump is in the left breast at the three o'clock position, 4cm from the nipple. The lump is non-tender and the overlying skin seems unaffected. Her observations are as follows:

Heart rate: 88, resp rate: 12, blood pressure: 110/70mmHg, Oxygen saturation: 98%, Temperature: 37.4 Cº.

What is the likely diagnosis, and what is the most appropriate next step in investigation?

A.Galactocele, no further investigation necessary

B.Galactocele, ultrasound imaging

C.Galactocele, fine need aspiration and cytology of fluid

D.Breast abscess, ultrasound imaging

E.Breast abscess, fine need aspiration and cytology of fluid

Answer:Galactocele, no further investigation necessary

Explanation:

Galactocele can usually be differentiated from a breast abscess by clinical history and examination findings alone, without need for further investigation

Important for meLess important

Recent cessation of breast feeding is a risk factor for both mastitis/abscess formation and also galactocele formation. Galactoceles can be clinically differentiated from a breast abscesses because they are painless and non-tender on examination, and there will be no local or systemic signs of infection.

In this scenario the patient's past medical history of mastitis raises the index of suspicion for a breast abscess, though the clinical picture is still strongly suggestive of a galactocele (i.e. non-tender lump, no localised erythema, afebrile).

Question:

A 36-year-old woman suffers from a major postpartum haemorrhage after delivering twins. The obstetric consultant examines her and suspects uterine atony to be the cause. The protocol for major PPH is initiated. Bimanual uterine compression fails to control the haemorrhage. Which drug is an appropriate next step in the management of uterine atony?

A.Intramuscular carboprost

B.Intravenous oxytocin

C.Rectal misoprostol

D.Intravenous carboprost

E.None - proceed immediately to balloon tamponade

Answer:Intravenous oxytocin

Explanation:

Medical treatments for postpartum haemorrhage secondary to uterine atony include oxytocin, ergometrine, carboprost and misoprostol

Important for meLess important

Uterine atony is the most common cause of primary postpartum haemorrhage. It entails failure of the uterus to contract fully following the delivery of the placenta, which hinders the achievement of haemostasis. Uterine atony is associated with overdistension, which may be due to multiple gestation, macrosomia, polyhydramnios or other causes.

In addition to the usual steps taken in an episode of PPH (including an ABC approach if the patient is unstable), the following management should be initiated in sequence:

bimanual uterine compression to manually stimulate contraction

intravenous oxytocin and/or ergometrine

intramuscular carboprost

intramyometrial carboprost

rectal misoprostol

surgical intervention such as balloon tamponade

(RCOG Green-top Guideline No. 52)

Question:

A 17-year-old comes to your clinic, concerned that she has not yet started her periods although most of her friends have. She is 150 cm tall and 45 kg in weight. She reports the development of pubic hair since the age of 14 and has normal breast development. On speculum examination, you are unable to visualise the cervix and the patient finds the examination too uncomfortable to tolerate further. Serum hormone screening reveals no gross abnormality. What management would you suggest?

A.Refer to a gynaecologist

B.Reassess in one year

C.Advise her to increase her calorie intake, check her hormone levels and reassess in two months.

D.Serum hormone screening

E.Refer to endocrinologist

Answer:Refer to a gynaecologist

Explanation:

It is important to consider causes of amenorrhoea, which can be broken down as follows:

Primary amenorrhoea: a woman has never had a period

A woman who has previously had periods now hasn't for (often quoted as lack of menses for least 6 months in women with previously normal periods, or for 12 months in women with previous oligomenorrhoea)

Primary amenorrhoea can be further described in relation to the development of secondary sexual characteristics. In this case, the young woman in question has developed apparently normal secondary sexual characteristics.

This raises the question of a mechanical obstruction to menstruation rather than an endocrine/ hormonal cause. It is uncommon for a 17-year-old girl with normal secondary sexual characteristics not to have had a period, therefore it is inappropriate to wait for a year before reassessment. Clinical judgement should be taken into account with younger women.

Question:

Muhammad, a 45-year-old man with type 2 diabetes, organises a telephone consultation with you, his normal GP.

Muhammad complains of diarrhoea and vomiting, which started since returning from Saudi Arabia 3 days ago. He has been opening his bowels 4-5 times daily. He has a poor appetite and is struggling to eat and drink.

On questioning, he denies any PR bleeding. He reports a mild fever of 37.6ºC. He has a home blood pressure monitor and states his blood pressure is 109/69 mmHg, heart rate 94/min. His self-checked capillary blood sugar shortly before the phone call was 10.9 mmol/L.

He takes metformin 1g twice daily, atorvastatin 40mg once daily, and NovoMix 30 insulin 25 units twice daily. He has no other significant past medical history of note.

What advice should you give him?

A.Increase Metformin

B.Continue NovoMix 30 and check blood glucose every 2-4 hours

C.Increase NovoMix 30 to three times daily

D.Stop NovoMix 30 temporarily, and restart if blood sugars rise above 15 mmol/L

E.Stop NovoMix 30, check blood glucose every 2-4 hours, and book review telephone consultation tomorrow to give further advice

Answer:Continue NovoMix 30 and check blood glucose every 2-4 hours

Explanation:

Diabetes sick day rules: when unwell, If a patient is on insulin, they must not stop it due to the risk of diabetic ketoacidosis. They should continue their normal insulin regime but ensure that they are checking their blood sugars frequently

Important for meLess important

Diabetes sick day rules state that a patient must not stop their insulin due to the risk of ketoacidosis. Concurrent illness will often raise blood sugars and demand for insulin will often rise.

Most guidance suggests increasing the dose of mixed insulin by 2-4 units if blood sugars are above 10 mmol/L.

He is already taking maximum dose of metformin. Further, metformin should be stopped if there is severe infection or dehydration.

NovoMix is a biphasic insulin and so is not prescribed as a three times daily dose.

Question:

A 24-year-old woman is reviewed in the genitourinary medicine clinic. She presented with vaginal discharge and dysuria. Microscopy of an endocervical swab showed a Gram-negative coccus that was later identified as Neisseria gonorrhoea. This is her third episode of gonorrhoea in the past two years. What is the most likely complication from repeated infection?

A.Lymphogranuloma venereum

B.Cervical cancer

C.Arthropathy

D.Infertility

E.Uterine abscess

Answer:Infertility

Explanation:

Infertility secondary to pelvic inflammatory disease (PID) is the most common complication of gonorrhoea. It is the second most common cause of PID after Chlamydia. Arthropathy may occur but it is far less common.

Lymphogranuloma venereum is caused by Chlamydia trachomatis.

Question:

A 60-year-old man is transferred from the local psychiatric unit to the Emergency Department. Throughout the day he has complained of palpitations and feeling light-headed. The psychiatry consultant noted he was tachycardic and requested a transfer. An ECG taken following admission shows a broad complex tachycardia consistent with torsardes de pointes, rate 120/min. His blood pressure is 122/80 mmHg and there are no signs of heart failure. What is the most appropriate management?

A.Intravenous naloxone

B.Intravenous magnesium sulphate

C.DC cardioversion

D.Intravenous amiodarone

E.Intravenous verapamil

Answer:Intravenous magnesium sulphate

Explanation:

IV magnesium sulfate is used to treat torsades de pointes

Important for meLess important

Question:

A 46-year-old man presents to the Emergency Department following the sudden onset of a severe headache. On examination he has marked neck stiffness and is pyrexial at 38ºC. Which one of the following factors in the history would suggest a diagnosis of subarachnoid haemorrhage rather than bacterial meningitis?

A.Previous intravenous drug abuse

B.Diabetes mellitus

C.Zinc deficiency

D.Family history of polycystic kidney disease

E.Acromegaly

Answer:Family history of polycystic kidney disease

Explanation:

ADPKD is a risk factor for subarachnoid haemorrhage

Important for meLess important

Question:

A 60-year-old woman develops a deep vein thrombosis (DVT) 10 days after having a hip replacement despite taking prophylactic dose low-molecular weight heparin (LMWH). She has no significant past medical history of note other than osteoarthritis. After being diagnosed she is started on treatment dose LMWH. What is the most appropriate anticoagulation strategy?

A.Continue on treatment dose LMWH for 6 weeks

B.Continue on treatment dose LMWH for 3 months

C.Continue on treatment dose LMWH for 6 months

D.Switch to direct oral anticoagulant for 3 months

E.Switch to direct oral anticoagulant for 6 months

Answer:Switch to direct oral anticoagulant for 3 months

Explanation:

Venous thromoboembolism - length of warfarin treatment

provoked (e.g. recent surgery): 3 months

unprovoked: 6 months

Important for meLess important

The recent surgery is an obvious 'provoking' factor for the DVT. She should therefore be anticoagulated for 3 months.

Question:

A 21-year-old man collapses whilst playing football with unexplained syncope. He is sent for an echocardiogram which shows an increase in the thickness of the interventricular septum. Which of the following is the best next step in the management of this patient?

A.Refer to cardiology for an implantable cardioverter-defibrillator

B.Refer to cardiology for a transcatheter aortic valve implantation (TAVI)

C.Refer to cardiology for cardiac resynchronisation therapy (CRT)

D.Start of warfarin

E.Start on aspirin

Answer:Refer to cardiology for an implantable cardioverter-defibrillator

Explanation:

An implantable cardioverter-defibrillator can be inserted to reduce the risk of sudden cardiac death in HOCM

Important for meLess important

This question is asking about the management of a young man who has experienced unexplained syncope. His echocardiogram shows an increased thickness of the interventricular septum which is characteristic of hypertrophic obstructive cardiomyopathy (HOCM). HOCM is an autosomal dominant disorder that is a cause of sudden death in young people. Unexplained syncope is one of the indicators that sudden death may occur and thus rapid treatment is required as well as limiting any strenuous exercise.

As stated above, an implantable cardioverter-defibrillator can be inserted to reduce the risk of sudden cardiac death in HOCM and so this is the correct answer.

Referral to cardiology for a transcatheter aortic valve implantation (TAVI) is not the correct answer as this is the surgical treatment for aortic stenosis.

Referral to cardiology for cardiac resynchronisation therapy (CRT) is not the correct answer as this is a surgical management option for heart failure, and not HOCM

Starting warfarin will have no effect as this is an anticoagulant, commonly used in the treatment of atrial fibrillation. Similarly, aspirin will have no effect.

Question:

A 5-year-old boy comes to see you at the GP surgery with his parents for a follow up. He has a six month history of nocturnal enuresis. Four months ago when you first saw him he was wetting the bed six to seven nights a week. At the time you gave his parents advice on reducing excessive fluid intake before bedtime, a toileting routine before bed and starting a reward system for agreed behaviour. His parents have implemented all of these and he is still wetting the bed six to seven nights a week. From the list below What would be the most appropriate next step in the management of his nocturnal enuresis?

A.Oxybutynin

B.Imipramine

C.Terlipressin

D.Enuresis alarm

E.Desmopressin

Answer:Enuresis alarm

Explanation:

An enuresis alarm is generally used first-line for nocturnal enuresis if general advice has not helped

Important for meLess important

A enuresis alarm is the first line treatment in children with nocturnal enuresis following initial lifestyle and behavioural measures. The exception to this is when an alarm is unacceptable or very undesirable to the child and family or if the child is over 8 years old and requires very quick short term reduction in nocturnal enuresis. It is also important to remember that enuresis alarms have a lower relapse rate than Desmopressin after stopping treatment.

Question:

Melissa, a 27-year-old pregnant woman (gravidity 1, parity 0) currently 33+0, presents to the general practitioner (GP) with a new rash.

Melissa attended her 4-year-old niece's birthday party 2 weeks earlier. Yesterday, she began to feel unwell with malaise and a loss of appetite. This morning, she also noticed a new itchy rash across her back and abdomen upon waking. She called her sister and learnt that one of her niece's friends at the party was recently diagnosed with chickenpox. Melissa has not had chickenpox before.

On examination, Melissa has red papules across her back and abdomen. She is afebrile.

Based on the above information, what is the most appropriate management option?

A.Calamine lotion and antihistamine to relieve itch

B.Paracetamol to relieve pain

C.Oral aciclovir

D.Intravenous aciclovir

E.Zoster immunoglobulin

Answer:Oral aciclovir

Explanation:

Pregnant women ≥ 20 weeks who develop chickenpox are generally treated with oral aciclovir if they present within 24 hours of the rash

Important for meLess important

Melissa is a pregnant woman (33 weeks) with chickenpox. She has experienced prodromal symptoms with malaise and a loss of appetite prior to the onset of her rash. As she has presented within 24 hours of the rash, she can be treated with oral aciclovir.

IV aciclovir is generally not required for pregnant women in contact with chickenpox.

It is reasonable to recommend calamine lotion and antihistamine to relieve itch. However, given that Melissa is currently pregnant, she should also commence on antiviral medications.

While pain is a major feature of shingles, it is less of a feature in chickenpox. Furthermore, Melissa has not complained of pain. Recommending paracetamol is therefore not the best management option.

Zoster immunoglobulin is offered to pregnant women exposed to chickenpox in the first 20 weeks of their pregnancy. As Melissa is 33 weeks into her pregnancy, she would not fit under this category.

Question:

A patient with heart-failure is being reviewed by the cardiologist. Their symptoms are under control at rest although the patient comments that walking to the shops can make him quite breathless. 5-years-ago, he says, this would not have been a problem. He doesn't struggle, though, making breakfast in the morning or moving around his house. He does mention though that more intense house-chores such as cleaning are a struggle.

According the the NYHA classification, what stage is this patient at?

A.Stage I

B.Stage II

C.Stage III

D.Stage IV

E.Stage V

Answer:Stage II

Explanation:

NYHA Class II Heart failure causes slight discomfort with ordinary activity. No symptoms on resting

Important for meLess important

There is no such thing as stage V so this is wrong.

Stage I - No limitation on ordinary physical activity (incorrect)

Stage II - Normal at rest. Ordinary physical activity causes breathlessness (correct)

Stage III - Normal at rest. Less-than-ordinary activity causes breathlessness (incorrect)

Stage IV - Symptoms at rest. (incorrect)

Making breakfast and moving around the house are not especially intense forms of activity and may still be achievable with no problem in stage II NHYA of heart failure. If he was unable to do these activities he would be classified stage III.

Question:

A 24-year-old patient attends their general practitioner with an earache. They complain of being unable to hear clearly and have had difficulty sleeping due to the pain. They noticed feeling hot at home and recorded a temperature of 38ºC. On examination, the tympanic membrane appears to be bulging and opacified.

Of the following, what is the most likely causative organism of this presentation?

A.Coxiella burnetti

B.Haemophilus influenzae

C.Pseudomonas aeruginosa

D.Staphylococcus aureus

E.Streptococcus pyogenes

Answer:Haemophilus influenzae

Explanation:

Haemophilus influenzae is a common cause of bacterial otitis media

Important for meLess important

Haemophilus influenzae is a common cause of bacterial otitis media. This patient has symptoms consistent with otitis media - otalgia, reduced hearing, and fever. Examination findings are further consistent with an otitis media picture (although otitis externa is more common in this age group, it would not present with a bulging tympanic membrane).

Coxiella burnetti is a common cause of lower respiratory tract infections (the patient would present with cough, fever, malaise).

Pseudomonas aeruginosa is a cause of otitis externa. This would present with otalgia, itching, and occasionally fever. The examination findings usually show an erythematous, swollen ear canal (which may occasionally have a degree of skin scaling) with an unremarkable tympanic membrane.

Staphylococcus aureus is another cause of otitis externa which would also present with otalgia and itching. Fever is sometimes seen in otitis externa patients, but it is less common than otitis media. The examination findings would show an unremarkable tympanic membrane with an erythematous ear canal. Therefore this would not be the cause of this patient's bulging membrane and is less likely than Haemophilus influenzae .

Streptococcus pyogenes is the most common organism causing cellulitis (accounting for up to two-thirds of cases). Group A streptococcus bacteria can cause otitis media but this is very rare.

Question:

A 31-year-old woman presents to her GP with troublesome symptoms affecting her mood and sleep. She reports having been hit by a car whilst crossing a busy road, several months ago. Physically, the incident left her with minor bruises only. However, since then she has been having flashbacks to the moment she was hit and is very scared when crossing roads, to the point that she actively avoids doing so if possible. She explains that the slightest car noise or horn will startle her. Generally, she feels tired and irritated and is having difficulty sleeping because of this.

Which of the following is the minimum amount of time that symptoms must be present for, given the likely diagnosis?

A.2 weeks

B.4 weeks

C.6 weeks

D.8 weeks

E.12 weeks

Answer:4 weeks

Explanation:

For a diagnosis of PTSD, symptoms should be present for at least one month

Important for meLess important

The correct answer is at least 4 weeks - this is a history pointing towards a diagnosis of post-traumatic stress disorder (PTSD), with the classic signs and symptoms following a traumatic event. The symptoms of PTSD can be classified into symptoms of hyperarousal (poor concentration, insomnia, increased startle response), re-experiencing phenomenon (flashback and nightmares), avoidance of reminders and emotional numbing. Symptoms occur following a traumatic life-event (such as a near-death experience in this case). For a diagnosis of PTSD, the symptoms should be present for at least one month. Less than this would be termed an acute stress reaction.

A patient who presents with these symptoms for only 2 weeks cannot yet be diagnosed with PTSD. They may have an acute stress reaction and may go on to develop PTSD if the symptoms persist into the 4-month timeframe.

While symptoms that are present for 6, 8 or 12-weeks would be sufficient for a diagnosis of PTSD, the question asks for the minimum time-frame. It is worth noting that this time-frame is referring to the time since onset of symptoms, not the time since the traumatic event.

Question:

A 51-year-old man presents to his GP with a new swelling of his left testicle. He has no past medical history and takes no regular medications. On examination there is a unilateral swelling of the left side of the scrotum which feels separate to the testicle itself, does not trans-illuminate and no superior border to the swelling can be felt in the top of the scrotum.

What is the most likely diagnosis?

A.Inguinoscrotal hernia

B.Hydrocele

C.Testicular cancer

D.Epididymo-orchitis

E.Epididymal cyst

Answer:Inguinoscrotal hernia

Explanation:

Scrotal swelling you can’t get above: inguinal hernia

Important for meLess important

When trying to work out the cause of a scrotal swelling, there are three important pieces of information which should be sought to help make a diagnosis; if the swelling involves the testicle, if the swelling trans-illuminates when a pen torch is placed below it and if it is possible to palpate above the swelling. This gentleman has a swelling which is separate from the testicle, effectively ruling out it being an epididymal cyst, epididymo-orchitis or a testicular tumour. The swelling does not transilluminate, ruling out a hydrocele and most importantly, it is not possible to palpate above the swelling which indicates it is coming from the groin down. The only cause of a swelling in the scrotum like this would be a hernia which has passed down the inguinal canal and into the scrotum.

Question:

You speak to the wife of a patient with depression who was recently discharged from a psychiatry ward after a suicide attempt. He was switched from sertraline to venlafaxine. His wife says his mood is okay but over the last 2 weeks, he became erratic and was not sleeping. He spoke fast about a 'handsome inheritance' he got but was gambling away their savings saying he was going to save the world. When confronted he became angry and accused her of trying to 'steal his energy'. You suspect he's developed mania and refer him to the crisis psychiatry team.

What do you expect will be the next step in management?

A.Cross-taper the patient back to sertraline

B.Cross-taper the patient to mirtazapine and add sodium valproate modified-release

C.Prescribe a two-week course of oral clonazepam

D.Start lithium

E.Stop venlafaxine and start risperidone

Answer:Stop venlafaxine and start risperidone

Explanation:

Management of mania/hypomania in patients taking antidepressants: consider stopping the antidepressant and start antipsychotic therapy

Important for meLess important

The correct answer is stop venlafaxine and start risperidone. This man has developed mania, with elevated mood, overactivity, lack of sleep, pressured speech, risk-taking behaviour, extravagance, irritability, and grandiose and possibly paranoid delusions. The presence of delusions and the duration of >1 week help to differentiate this from hypomania.

Antidepressants are known to trigger mania or hypomania as a side effect when used alone in unipolar or bipolar depression. This is also sometimes termed a manic 'switch' ie from depression to mania. The risk seems higher with SSRIs and tricyclic antidepressants (TCAs) and particularly high with venlafaxine. There is some evidence that this risk is lower with mirtazapine, however, cases have been reported as well.

Cessation of antidepressant treatment is recommended when patients with depression develop mania. NICE guidance on the management of bipolar disorder advises:

'If a person develops mania or hypomania and is taking an antidepressant (as defined by the BNF) as monotherapy:

Consider stopping the antidepressant and

Offer an antipsychotic regardless of whether the antidepressant is stopped.'

NICE guidance then recommends that the choice of antipsychotic should be one of:

Haloperidol

Olanzapine

Quetiapine

Risperidone

If one of these antipsychotics fails at the maximum tolerated dose or is not tolerated, then an alternative from the same list should be tried next. If these fail, the addition of lithium is the third line, and sodium valproate is the fourth line.

Cross-taper the patient back to sertraline is not correct. Sertraline and other SSRIs are not indicated in the treatment of acute mania and may worsen it. They may have a lower risk of inducing mania than venlafaxine, however, all antidepressants are recommended to be stopped by NICE during an acute manic episode for patients, regardless of whether they are on antipsychotic therapy. NICE also recommends fluoxetine as the SSRI of choice in combination with olanzapine in treating a depressive episode in patients with bipolar disorder. Fluoxetine has a very long half-life of 4-6 days, which can limit extreme mood variations that can trigger mania. An alternative antidepressant in bipolar disorder would be quetiapine monotherapy. A third line is lamotrigine monotherapy, however, this is known to also trigger mania and should be up titrated very slowly.

Cross-taper the patient to mirtazapine and add sodium valproate modified-release is not correct. There is some evidence that hypnotic antidepressants like mirtazapine may be less likely to induce mania, however, in this scenario, the man has developed acute mania which would need to be treated first. Aripiprazole is a relatively novel atypical antipsychotic that has a favourable side-effect profile in comparison to other conventional antipsychotics. This relates to its partial agonism (as opposed to antagonism) of the D2 dopamine receptor. However, it is not recommended by NICE as a first-line antipsychotic for the management of acute mania in adults (see list above) but is recommended first-line in the management of mania in children and adolescents.

Sodium valproate modified-release is a second-line mood stabiliser, after lithium. In the treatment of acute mania, NICE recommends antipsychotics as first-line, with a different antipsychotic to the first as second-line if the first is not effective. These would need to be titrated to the maximum BNF dose. In case this is ineffective, the addition of lithium would be the third line, and if lithium is ineffective, contraindicated or not suitable, valproate could then be considered (fourth line). This should be avoided in women of childbearing age due to its high teratogenic potential, unless necessary and where a pregnancy prevention programme is in place.

Prescribe two-week course of oral clonazepam is not correct. While this may help control the manifestations of mania, it does not address the cause which is likely venlafaxine. Benzodiazepine use also carries a risk of overdose, and although an isolated benzodiazepine overdose has a low lethal potential, a mixed overdose with other CNS and respiratory depressants, for example, alcohol, over the counter (OTC) co-codamol or OTC promethazine could be lethal. This patient also has a high risk due to his previous suicide attempt and it would therefore be a really bad idea to prescribe these in the community, without the level of monitoring available through inpatient or outpatient secondary care teams.

Start lithium is not correct. Lithium is very effective in manic and depressive relapse prevention in bipolar disorder but it is not recommended as 1st line for the management of acute mania in patients who are not already on antipsychotics. The reason for this is it has a much slower onset of action of around 1-2 weeks, as opposed to antipsychotics which have a rapid onset. Furthermore, NICE advises considering stopping the antidepressant:

'If a person develops mania or hypomania and is taking an antidepressant (as defined by the BNF) in combination with a mood stabiliser, consider stopping the antidepressant.'

Question:

A 77-year-old male presents to his general practitioner with new-onset visual symptoms. He cannot read the newspaper properly, especially at night time. His symptoms seem to be varying in intensity each day. The doctor performs a fundoscopy that shows the presence of small accumulations of extracellular material between Bruch's membrane and the retinal pigment epithelium of the eye. The examination is otherwise normal. He has no relevant past medical history and he is a life-long smoker.

Which one of the following is the most likely diagnosis?

A.Cataracts

B.Dry age-related macular degeneration

C.Presbyopia

D.Retinitis pigmentosa

E.Wet age-related macular degeneration

Answer:Dry age-related macular degeneration

Explanation:

Drusen = Dry macular degeneration

Important for meLess important

The correct answer is dry age-related macular degeneration. This patient is presenting with a fluctuating reduction in visual acuity, especially at night. These are classical symptoms of age-related macular degeneration. There are two types of age-related macular degeneration: wet and dry. Wet age-related macular degeneration is characterised by choroidal neovascularisation. Dry age-related macular degeneration is characterised by drusen, here described as small accumulations of extracellular material between Bruch's membrane and the retinal pigment epithelium of the eye, making this the correct option.

A cataract is described as the opacification of the lens. It presents with reduced vision, faded colours, glare and halos. Fundoscopy shows normal fundus and optic nerve, making this option incorrect.

Presbyopia is defined as a lack of eye accommodation associated with ageing that results in progressively worsening ability to focus clearly on close objects. It is a good differential as the patient complaints that they cannot read the newspaper, but with this condition, the symptoms are stable in time, rather than fluctuating. Additionally, fundoscopy would show normal fundus and optic nerve, making this option incorrect.

Retinitis pigmentosa usually presents with night blindness, further developing into tunnel vision. Even if this patient complains of worse symptoms at night, the fundoscopy, in this case, would show black bone spicule-shaped pigmentation in the peripheral retina and mottling of the retinal pigment epithelium, making this option incorrect.

Wet age-related macular degeneration presents with the same symptoms as dry age-related macular degeneration. Fundoscopy is the key in differentiating them, as wet age-related macular degeneration is characterised by choroidal neovascularisation which is not present on fundoscopic examination of this patient.

Question:

A 41-year-old pregnant woman requests a telephone call to understand why she has been asked to attend an oral glucose tolerance test.

This is her 5th pregnancy, her previous babies have ranged from 3.4-4.6kg at birth. She has no past medical history of diabetes. Both parents have hypertension, and her grandfather has known diabetes. Her ethnicity is white British. She is overweight, with a BMI of 29.6kg/m².

Why would this patient qualify for an oral glucose tolerance test?

A.Her age

B.Her body mass index

C.Her ethnicity

D.Her family history

E.Previous macrosomia

Answer:Previous macrosomia

Explanation:

Pregnant women who have a first degree relative with diabetes should be screened for gestational diabetes with an oral glucose tolerance test (OGTT) at 24-28 weeks

Important for meLess important

Previous macrosomia is the correct answer. As per NICE guidance, pregnant women are screened for gestational diabetes with an oral glucose tolerance test if they have risk factors, which include a history of a previous macrosomic baby weight of 4.5kg or more.

At the booking appointment, pregnant women will be checked for risk factors. If present, they will be screened for gestational diabetes via an oral glucose tolerance test (OGTT) at 24-28 weeks. Risk factors include:

BMI above 30 kg/m²

Previous macrosomic baby weighing 4.5 kg or more

Previous gestational diabetes

Family history of diabetes (first‑degree relative with diabetes)

An ethnicity with a high prevalence of diabetes

Her age is an incorrect answer. Age is not an indicator for an OGTT.

Her BMI is an incorrect answer. She is overweight (BMI 25-29.9kg/m²), but not obese, so this does not qualify her for an OGTT.

Her ethnicity is an incorrect answer. Ethnicities such as South Asian (India, Pakistan, Bangladesh), Black African/Caribbean, and Middle Eastern (Saudi Arabia, UAE, Iraq, Jordan, Syria, Oman, Qatar, Kuwait, Lebanon, Egypt) are considered at higher risk of gestational diabetes, and so are screened during pregnancy.

Her family history is an incorrect answer. Pregnant women are screened for gestational diabetes, with an oral glucose tolerance test if they have a first-degree relative with diabetes and so her grandfather having diabetes would not be an indicator for an OGTT.

Question:

A 5-year-old boy is brought to the surgery with chickenpox. His mother wants advice regarding school exclusion. What is the most appropriate advice to give?

A.Should be excluded until 3 days after all lesions have crusted over

B.Should be excluded until 7 days after skin lesions first appeared

C.Should be excluded until all lesions have crusted over

D.School exclusion is not indicated

E.Should be excluded until 5 days after all lesions have crusted over

Answer:Should be excluded until all lesions have crusted over

Explanation:

Chickenpox school exclusion - until all the lesions are dry and have crusted over (usually about 5 days after the onset of the rash)

Important for meLess important

Question:

You review a 25-year-old man who is complaining of leg weakness. Other than a bout of diarrhoea three weeks ago he has been feeling fit and well and has no significant medical history. On examination you note reduced power in his legs, normal sensation and reduced knee and ankle reflexes. His pulse is 78/min and blood pressure is 122/84 mmHg (standing), 100/64 mmHg (sitting). What is the most likely diagnosis?

A.Botulism food poisoning

B.Guillain-Barre syndrome

C.Cauda equina syndrome

D.Myasthenia gravis

E.Transverse myelitis

Answer:Guillain-Barre syndrome

Explanation:

Question:

You are working in a GP practice. A 66-year-old lady comes in for her routine INR check. Her past medical history includes a mechanical prosthetic heart valve, epilepsy and depression. Her target INR is 3.5. Today her INR is 2.5. Which factor can decrease the effect of warfarin?

A.Metronidazole

B.Phenobarbital

C.Sertraline

D.Simvastatin

E.Regular paracetamol

Answer:Phenobarbital

Explanation:

Phenobarbital can lead to a decrease in INR

Important for meLess important

The liver plays a very important role in the metabolisation of medications by the P450 enzyme system. Some medications are inducers of this system- this means the medication is metabolised quicker than normal and therefore has less therapeutic effect. Other medications are inhibitors of this system- this means the medication is metabolised slower than normal therefore has an increased therapeutic effect. It is very important to have an awareness of these effects when co-prescribing medications, particularly with warfarin as this can lead to unwanted changes in INR.

Phenobarbital is an inducer of the P450 system so warfarin is metabolised quicker, therefore decreasing INR.

Metronidazole and sertraline are inhibitors of P450 system so would increase the effects of warfarin, therefore increasing INR.

Simvastatin can lead to a small increase in INR, as can regular paracetamol.

Drug interactions involving warfarin: Practice tool and practical management tips (Bungard et al.): http://www.cifav.it/res/download/pdf/152it.pdf

Question:

A 55-year-old man presents to the GP with heartburn. He describes epigastric pain that goes away when he eats but then returns two or three hours afterwards, this has been going on for the last 2 months. The pain is 8/10 when it's at its worst and he has found that over the counter antacids help his pain.

Given his presentation, what is the most likely diagnosis?

A.Gastro-oesophageal reflux disease (GORD)

B.Gastric ulcer

C.Duodenal ulcer

D.Zollinger-Ellison Syndrome

E.Myocardial infarction

Answer:Duodenal ulcer

Explanation:

Duodenal ulcers characteristically cause pain when hungry, and are relieved by eating

Important for meLess important

This question is asking about a man presenting with heartburn and epigastric pain relieved by eating, this fits the typical pattern of a duodenal ulcer. Peptic ulcers (both duodenal and gastric) typically cause epigastric pain associated with heartburn and nausea. You can help differentiate between duodenal and gastric ulcers by asking about their relationship to food. With duodenal ulcers being relieved by food, and gastric ulcer worsening with food.

Gastro-oesophageal reflux disease would typically cause less painful symptoms (e.g. not 8/10 pain). Also, the pain would characteristically radiate up from the chest to the neck. It could also be associated with spicy foods, coffee or other symptoms such as excess salivation or odynophagia.

Zollinger-Ellison Syndrome characteristically presents with multiple peptic ulcers as well as diarrhoea, along with a family history of multiple endocrine neoplasia. The patient has no family history or mention of diarrhoea.

The pain of a myocardial infarction typically is central crushing chest pain radiating to the arm or chin. And thus does not fit with the description of the pain or the timing.

Question:

A 67-year-old male presents to the emergency department complaining of severe generalised abdominal pain, which hasn't improved despite morphine. The pain started suddenly 2 hours ago after eating fish and chips, and he reports that he has never had a similar problem to this. His medical history includes hypertension, type 2 diabetes, abdominal aortic aneurysm (3.9cm) and atrial fibrillation. He currently takes warfarin, metformin, gliclazide and amlodipine. He smokes 30 cigarettes per day. His bloods are as follows;

Na+ 139 mmol/l

K+ 5.0 mmol/l

Urea 7.1 mmol/l

Creatinine 145 µmol/l

Bicarbonate 26 mmol/l

Lactate 3 mmol/l

The patient is haemodynamically stable. What is the most likely diagnosis?

A.Acute cholecystitis

B.Diverticulitis

C.Pancreatitis

D.Acute mesenteric ischaemia

E.Abdominal aortic aneurysm rupture

Answer:Acute mesenteric ischaemia

Explanation:

Acute mesenteric ischaemia secondary to an emboli (AF). This patient is a vasculopath (hypertension, diabetes, smoker) therefore acute emboli on chronic atherosclerosis of abdominal vessels (coeliac, superior mesenteric artery, inferior mesenteric artery).

Currently his abdominal aortic aneurysm is not large enough to warrant the requirement to operate on, and the risk of rupture is <0.5%

Aneurysms and AF can be a common source of emboli.

Acute cholecystitis would likely have previous episodes and more localised right upper quadrant pain.

Question:

An elderly patient with type 1 diabetes mellitus and moderate alzheimer's dementia presents to you with his daughter. She has brought him in because he had crashed his car into a lamp post at low speed outside her house. She says that he was confused and only became better with some sugary drinks. His blood glucose diary is incomplete and she says he has often taken injections more often than he is meant to. When you ask him about it, he is clearly confused and lacks recall of the incident. When you try to tell him not to drive he does not understand your advice.

What is the most appropriate course of action?

A.Ask his Daughter to contact the DVLA on his behalf

B.Contact the DVLA immediately to inform them

C.Ask his Daughter to hand in his car keys to the police

D.Tell him it is his responsibility to contact the DVLA

E.Call the Police as you are concerned that he may drive and hurt someone

Answer:Contact the DVLA immediately to inform them

Explanation:

Normally, the driver of a car is legally responsible for informing the DVLA of any issues with their health and disclosures to the DVLA are a common topic of medical ethics. This is because they can be fraught with legal and ethical dilemmas.

In this case, however, it is clear that the gentleman does not understand the advice you have given him about his lack of fitness to drive. In such cases, you are responsible for informing the DVLA immediately.

See 4.a. Confidentiality: reporting concerns to the DVLA or the DVA: Guidance

http://www.gmc-uk.org/guidance/ethicalguidance/30117.asp

Question:

Which one of the following symptoms may indicate mania rather than hypomania?

A.Auditory hallucinations

B.Increased appetite

C.Insomnia

D.Pressured speech

E.Irritability

Answer:Auditory hallucinations

Explanation:

Whilst criteria vary (e.g. ICD-10, DSM-5) the consistent difference between mania and hypomania is the presence of psychotic symptoms, e.g. auditory hallucinations.

Question:

A 68-year-old female has some routine blood tests. Her FBC reveals a microcytic anaemia, and so her physician orders iron studies to establish the underlying cause. Her iron studies are shown below. Based on these, what is the most likely cause of her anaemia?

Iron 8µmol/L 13-32 µmol/L

Transferrin 1.6g/L 2.00-3.60g/L

TIBC 35µmol/L 45-70µmol/L

A.Iron deficiency anaemia

B.Folate deficiency

C.Anaemia of chronic disease

D.Vitamin B12 deficiency

E.Alcohol excess

Answer:Anaemia of chronic disease

Explanation:

Iron defiency anaemia vs. anaemia of chronic disease: TIBC is high in IDA, and low/normal in anaemia of chronic disease

Important for meLess important

Anaemia can be classified based on the sizes of the red blood cells. The three types of anaemia are macrocytic (large red cell size), microcytic (small red cell size) and normocytic (normal red cell size). The question stem has told us that the anaemia is microcytic. This means that we can rule out vitamin B12 deficiency, folate deficiency and alcohol excess, as these are all causes of a macrocytic anaemia.

This, therefore, leaves us with two options: iron deficiency (ID) and anaemia of chronic disease (ACD). Both can cause a microcytic anaemia. To distinguish between the two causes, iron studies are used:

• Transferrin is the body’s carrier of iron around the blood. In states of iron deficiency, transferrin increases as the body tries to “make the most” of what iron it has left, meaning that transferrin levels go up.

• Anaemia of chronic disease is the body’s physiological response to a danger, such as a potentially harmful pathogen. Like humans, pathogens require iron for metabolism and survival. Therefore, in ACD, the body reduces iron available for pathogens by circulating less around the blood. This means that transferrin decreases.

• TIBC measures the number of binding sites on transferrin available for iron. It therefore also increases in ID and decreases in ACD.

It is worth noting that anaemia of chronic disease can also present as a normocytic anaemia.

Question:

A 55-year-old lady with known metastatic breast cancer presents to the acute medical take with hypercalcaemia. She has no other co-morbidities, is a non-smoker and works in an office based job. She is treated with intravenous fluid and bisphosphonates, after which her calcium normalises and she is discharged.

At discharge, she is referred to the endocrinology department for outpatient follow-up, alongside regular blood calcium monitoring. What verbal advice is it most important to give her on discharge from hospital?

A.Avoid excess exercise until treated

B.Low calcium diet

C.Reduce alcohol intake

D.Ensure adequate sunlight exposure

E.Increase fluid intake

Answer:Increase fluid intake

Explanation:

In the context of hypercalcaemia secondary to malignancy the below advice is suggested by NICE:

Advice about maintaining good hydration (drinking 3-4 L of fluid per day), provided there are no contraindications (such as severe renal impairment or heart failure).

Reassure that a low calcium diet is not necessary, as intestinal absorption of calcium is usually reduced.

Advise the person to avoid any drugs or vitamin supplements that could exacerbate the hypercalcaemia.

Encourage mobilization where possible to avoid exacerbating the hypercalcaemia.

Advise the person to report any symptoms of hypercalcaemia.

NICE Guidelines: Hypercalcaemia - http://cks.nice.org.uk/hypercalcaemia)

Question:

An 83-year-old patient is brought into the emergency department following a fall at home. She reports getting out of bed to use the bathroom and falling on her hip. She tells you she heard a cracking noise and was unable to get up until the carers found her the next morning.

On examination, the patient appears agitated with an inability to perform active hip movements and pain when the joint is moved passively. An X-ray shows a subtrochanteric fracture of the left femur.

The patient was previously independent and coping well alone.

Given the diagnosis, how should this patient be managed?

A.Dynamic hip screw

B.Hemiarthroplasty

C.Intramedullary device

D.Supportive management

E.Total hip replacement

Answer:Intramedullary device

Explanation:

Extracapsular hip fracture (subtrochanteric fracture) - intramedullary device

Important for meLess important

Intramedullary device is correct. This patient has a fracture of the left femur. The X-ray tells us that this is an extracapsular fracture, occurring below the trochanters (subtrochanteric). As the fracture is extracapsular, there are two management options - an intramedullary device, or a dynamic hip screw. For subtrochanteric fractures, the management option of choice is an intramedullary device.

Dynamic hip screw is incorrect. A dynamic hip screw is used in the management of extracapsular hip fractures. However, is reserved for the treatment of intertrochanteric fractures (i.e., a fracture from the greater to lesser trochanter). As this fracture has occurred below the trochanters, a dynamic hip screw would be inappropriate.

Hemiarthroplasty is incorrect. A hemiarthroplasty is a partial hip replacement. This is used in patients with intracapsular hip fractures who are unfit for a total hip replacement i.e., did not have good mobility before the fracture.

Supportive management is incorrect. This option is incorrect as the patient has a fractured femur and requires surgical intervention. There is nothing in this stem that indicates that the patient is unfit for surgery and so an intervention should be planned to treat the fracture and attempt to restore this patient to their baseline mobility.

Total hip replacement is incorrect. A total hip replacement is used in the treatment of patients with an intracapsular fracture. This is because there is a risk to the femoral head in intracapsular fractures as a result of its retrograde blood supply. As there is a risk of avascular necrosis, an intervention, such as a total hip replacement is needed to fix any displacement and replace bone that cannot be repaired by internal fixation.

Question:

A 19-year-old student is brought into the emergency department after eating a meal containing shellfish. Despite having had reactions to shellfish in childhood, they did not bring their adrenaline injector to university as they have not had a recent reaction.

On examination, there is lip swelling, a respiratory wheeze, and an erythematous rash which they report as extremely itchy. Observations show heart rate 112 beats/min, respiratory rate 22 breaths/min, oxygen saturations 98% in room air, blood pressure 116/92mmHg and temperature 37.0ºC.

They were given 500mcg IM adrenaline by the paramedics and another dose upon arrival in the department - despite this, their symptoms have persisted.

What is the most accurate diagnosis?

A.Anaphylactic shock

B.Biphasic anaphylaxis

C.Non-immunologic anaphylaxis

D.Pseudoanaphylaxis

E.Refractory anaphylaxis

Answer:Refractory anaphylaxis

Explanation:

Refractory anaphylaxis is defined as respiratory and/or cardiovascular problems persisting despite 2 doses of IM adrenaline

Important for meLess important

Refractory anaphylaxis is an ongoing anaphylactic reaction that persists despite being given 2 doses of IM adrenaline (in an adult patient, this would be 2 doses of 500mcg IM adrenaline). This is a serious situation and requires senior input. Patients who experience refractory anaphylaxis may require IV adrenaline infusion due to the ongoing reaction.

Anaphylactic shock is due to systemic vasodilation - this is defined as a blood pressure 30% lower than the expected value and is associated with tachycardia, weak/thready pulse and often nausea and vomiting. Despite this patient being tachycardic, their blood pressure remains stable indicating that they are not currently shocked.

Biphasic anaphylaxis is a secondary anaphylactic reaction that occurs between 1 and 72 hours after resolution of the initial anaphylaxis symptoms. As the patient has not had resolution of their symptoms yet, this is an incorrect answer.

Non-immunologic anaphylaxis occurs in response to physical conditions (such as the cold or exercise) and to certain drugs. This patient's anaphylactic reaction to shellfish (which has previously occurred as a child) is an IgE mediated, immunologic anaphylaxis.

Pseudoanaphylaxis is where mast cell degranulation occurs independently of the introduction of an allergen. It is similar to non-immunologic anaphylaxis and can occur in response to physiological states. As this patient has ingested a known allergen (which has caused an IgE mediated immunologic anaphylaxis), this is an incorrect option.

Question:

A 32-year-old male presents to the emergency department with fever, maculopapular rash and headache. He returned from Thailand 7 days ago and felt unwell, with severe lethargy, chills and facial flushing. His temperature is 40ºC, all other observations are normal. He has no significant medical history.

His blood results are as follows:

Hb 138 g/L Male: (135-180)

Female: (115 - 160)

Platelets 78 \* 109/L (150 - 400)

WBC 12 \* 109/L (4.0 - 11.0)

Na+ 138 mmol/L (135 - 145)

K+ 4.5 mmol/L (3.5 - 5.0)

Urea 6.5 mmol/L (2.0 - 7.0)

Creatinine 110 µmol/L (55 - 120)

CRP 4 mg/L (< 5)

What is the most likely diagnosis?

A.Dengue fever

B.HIV seroconversion

C.Malaria

D.Meningitis

E.COVID-19

Answer:Dengue fever

Explanation:

Retro-orbital headache, fever, facial flushing, rash, thrombocytopenia in returning traveller → ?dengue

Important for meLess important

The most likely diagnosis is dengue fever. Dengue should be suspected in individuals who present with high fever, retro-orbital headache, muscle and joint pain, nausea, lymphadenopathy, vomiting, and rash and who have travelled within 2 weeks of symptom onset to an area where appropriate vectors are present and dengue transmission may be occurring.

HIV seroconversion can present with symptoms such as fever, lethargy and a rash, however, the incubation period is usually over 2 weeks. There is also no mention of exposure to potential HIV sources ie unprotected sexual intercourse.

Malaria can present with fever, headache and lethargy. However, it is less common in Thailand and more common in African countries. Thrombocytopenia is a common haematological complication of malaria caused by Plasmodium species.

Meningitis can cause fever and headache, however, the patient may experience other symptoms such as neck pain and photophobia.

COVID-19 can present with a fever, however, there is no mention of other key symptoms such as a cough or change in sense of taste or smell.

Question:

A 23-year-old gentleman with a 3 cm left-sided pneumothorax has a chest drain inserted.

Which of the following options confirms that the chest drain is located in the pleural cavity?

A.The water seal rises on inspiration and falls on expiration

B.The water seal falls in inspiration and rises on expiration

C.The drain is painful when the patient moves

D.There is no bubbling in the water seal when the patient coughs

E.There is frank blood in the drain contents

Answer:The water seal rises on inspiration and falls on expiration

Explanation:

Chest drain swinging: Rises in inspiration, falls in expiration

Important for meLess important

One end of a chest drain is inserted into the pleural space of this patient, whilst the other is connected to a bottle with an underwater seal. If the drain is correctly located in the pleural space, it will respond to changes in thoracic pressures. Accordingly, as the patients expands their thoracic cavity at the start of inspiration, the pressure in the pleural space becomes increasingly more negative - drawing air into the lungs from the outside, and simultaneously it will also cause the water level of the underwater seal to rise inside the bottle. Conversely, on expiration, the fluid in the underwater seal falls as the pressure gradient within the pleural space falls. Thus, if the chest drain is correctly placed in the thoracic cavity (and remains patent) - the water level in the drain bottle is said to “swing” in response to changes in thoracic pressures.

Question:

A 60-year-old male has been brought to the emergency department by ambulance with severe right upper quadrant pain. The patient reports he has consumed 1L of whisky a day for as long as he can remember.

On examination, he appears jaundiced and has a markedly distended abdomen. Palpation of the abdomen demonstrates a tender enlarged liver and associated shifting dullness with fluid thrill.

His temperature is 37.2ºC and an ECG demonstrates sinus tachycardia.

Blood results are as follows:

Hb 139 g/L Male: (135-180)

Female: (115 - 160)

Platelets 130 \* 109/L (150 - 400)

WBC 11.0 \* 109/L (4.0 - 11.0)

Bilirubin 82 µmol/L (3 - 17)

ALP 146 u/L (30 - 100)

ALT 328 u/L (3 - 40)

γGT 118 u/L (8 - 60)

Albumin 33 g/L (35 - 50)

What is the most appropriate management for this patient?

A.Antibiotics

B.Fluid therapy

C.Lactulose

D.Liver transplant

E.Prednisolone

Answer:Prednisolone

Explanation:

Corticosteroids are used in the management of severe alcoholic hepatitis

Important for meLess important

This patient has alcoholic hepatitis as indicated by the history of alcohol consumption, examination findings, and deranged liver function tests. Corticosteroids are indicated in the management of severe alcoholic hepatitis to limit inflammation.

Antibiotics will not treat underlying hepatitis, although further investigations such as an ascetic tap can be carried out to exclude bacterial peritonitis. However, at this stage, there is little evidence of active infection.

There are no signs of shock in this patient and you should be cautious with fluid therapy due to the presence of ascites.

Lactulose is indicated if hepatic encephalopathy is suspected to avoid constipation, a common precipitant. This patient has no features to suggest encephalopathy, for example, confusion, seizures, and asterixis.

A liver transplant is not currently the best treatment for this patient and he is still consuming alcohol. At this stage, corticosteroids are the most suitable treatment option.

Question:

A 46-year-old woman presents to the GP due to the fact that she has noticed blood in her urine over the last two weeks. She denies abdominal pain, dysuria, or urinary frequency and otherwise feels well. She has no past medical history, takes no medications and is a non-smoker

On examination, her abdomen is soft and non-tender and all of her observations are normal. There are no abnormalities on examination of the external genitalia.

A urine sample confirms visible haematuria. The results of a urine dipstick are below:

Blood +++

Leucocytes -

Ketones -

Nitrites -

Protein -

How should this patient be managed?

A.Empirical treatment for UTI with follow-up in one month

B.Non-urgent referral to urology

C.Refer as suspected urological cancer

D.Referral for CT-KUB

E.Referral for urgent renal and bladder ultrasound

Answer:Refer as suspected urological cancer

Explanation:

Urgent 2 week wait referral is needed for unexplained visible haematuria without UTI

Important for meLess important

Visible haematuria in over 45s that either is not associated with a UTI or that persists after successful treatment of UTI should be referred urgently under the 2-week wait pathway. This is because visible haematuria can be a sign of bladder or renal cancer. The correct answer is, therefore, refer as suspected urological cancer.

Empirical treatment for UTI is incorrect. This patient does not have typical symptoms of a UTI (e.g. dysuria and urinary frequency) and there is no evidence of infection on the urinary dipstick. Whilst it would still be pertinent to send a urinary culture to confirm that there is no infection, it would not be acceptable to leave this patient's symptoms for one month without review to rule out cancer.

Non-urgent referral to urology is incorrect. The patient has a symptom that could be cancer and therefore needs urgent referral and investigation.

Referral for CT-KUB is incorrect. This might be appropriate if renal stones were suspected, however, there is no history of loin or abdominal pain. Furthermore, as discussed, the patient needs urgent investigation to rule out malignancy. Any imaging should be done as part of a suspected cancer workup by the urology team.

Referral for urgent renal and bladder ultrasound is inappropriate. Suspected cancers should be referred along a cancer pathway to ensure multidisciplinary involvement and that the most appropriate investigations are performed. It would be appropriate for the GP to arrange their own imaging if the patient did not fit referral criteria. Furthermore, it is cystoscopy, not ultrasound, that is the most important investigation in investigating possible bladder cancer. An ultrasound would not typically be a first-line investigation.

Question:

A 14-year-old patient is brought to the emergency department following an accident playing football. He landed awkwardly on his arm and was found to have a fracture. This was reduced but the patient is still experiencing extreme pain, particularly on passive stretching. His arm appears swollen and he is complaining of tingling in his hand and forearm.

Which fracture is most commonly associated with the condition he is experiencing?

A.Clavicular fracture

B.Colles' fracture

C.Metacarpal fracture

D.Radial head fracture

E.Supracondylar fracture

Answer:Supracondylar fracture

Explanation:

Compartment syndrome is most commonly associated with supracondylar and tibial shaft fractures

Important for meLess important

The patient is experiencing compartment syndrome. This is characterised by pain beyond what is expected of the injury, particularly on passive stretching. It may also be associated with swelling and paraesthesia of the affected limb. Numbness and paralysis are late signs.

Compartment syndrome is most commonly associated with supracondylar fractures in the arm and tibial shaft fractures in the lower leg.

Question:

A 28-year-old male has very recently been admitted following a mixed tablet overdose, consisting of 32 tablets of paracetamol and approximately 12 codeine phosphate tablets. He is subsequently commenced on IV acetylcysteine for treatment of his high plasma paracetamol levels as well as activated charcoal since the overdose was within the last hour. His oxygen saturations on arrival were 93%, and thus he was given supplemental oxygen to achieve target saturations. IV fluids were also given.

When you arrive to see this patient, you clearly witness him struggling for breath. He is audibly wheezing, has a noticeable widespread erythematous papular rash over his skin, and is markedly hypotensive (87/48mmHg).

What is the most likely cause of this acute deterioration?

A.Activated charcoal

B.High plasma paracetamol levels

C.IV 0.9% sodium chloride infusion

D.IV acetylcysteine infusion

E.Overdose of codeine phosphate

Answer:IV acetylcysteine infusion

Explanation:

N-Acetylcysteine commonly causes an anaphylactoid reaction (non-IgE mediated mast cell release)

Important for meLess important

IV acetylcysteine is a common cause of an anaphylactoid reaction, which is evident in this patient (bronchospasm, urticaria, hypotension). Whilst the other causes have a very small chance of causing anaphylaxis, it is well known that acetylcysteine can cause this and it is important to be aware of when giving a patient this infusion. Management of the reaction would include stopping the infusion, treating the reaction, then restarting the infusion at a slower rate.

High plasma paracetamol levels can cause hepatic dysfunction, but would not typically result in anaphylaxis.

Codeine phosphate overdose can cause respiratory depression if a large number of tablets are taken, but would not result in such an acute deterioration whilst in hospital. An anaphylactoid reaction is very unlikely to result from an overdose.

IV 0.9% sodium chloride is widely used as the first fluid therapy in acutely unwell patients, with the risk of adverse effects being very low. An anaphylactoid reaction is very unlikely to result from this.

Activated charcoal is very unlikely to cause an anaphylactoid reaction. Gastrointestinal disturbances are the only potential side effects to be concerned about here.

Question:

A 42-year-old man presents with a 2 week history of a worsening sore throat, is complaining of painful swallowing. On examination you notice that he has difficulty opening his jaw, purulent tonsils and his uvula is deviated to the right. Given the likely diagnosis, how should this condition be managed?

A.Oral antibiotics

B.IV antibiotics

C.Oral antibiotics and tonsillectomy

D.IV antibiotics and tonsillectomy

E.IV antibiotics and surgical drainage

Answer:IV antibiotics and surgical drainage

Explanation:

Quinsy should be treated with IV antibiotics and surgical drainage, and a tonsillectomy should be considered in 6 weeks

Important for meLess important

The most likely diagnosis in this case is peritonsillar abscess (quinsy), a complication of bacterial tonsillitis. Though tonsillitis is treated with oral antibiotics, quinsy should be treated with IV antibiotics and surgical drainage, and a tonsillectomy should be considered in 6 weeks.

In cases of uncomplicated bacterial tonsillitis there are now strict criteria for recommending tonsillectomy, and this procedure is performed much less frequently than in the past.

Question:

You are reviewing the management of a number of patients with chronic obstructive pulmonary disease (COPD). Which one of the following factors should prompt an assessment for long-term oxygen therapy?

A.Failure to respond to inhaled and/or oral corticosteroids

B.FEV1/FVC of 0.47

C.Haemoglobin of 10.1 g/dl

D.Anxiety relating to chronic shortness-of-breath

E.Ankle oedema

Answer:Ankle oedema

Explanation:

Question:

A 34-year-old businessman presented to the hospital with a low-grade fever, blood-streaked sputum and a dry cough for 7 weeks. He had been travelling extensively in India, staying in cheap and unsanitary accommodations. You decide to send him for further testing which confirms a diagnosis of tuberculosis. He is started on the correct antibiotics. Two weeks later, he presents to your outpatient clinic with joint pain, fatigue and a new rash. The rash is confined to his face and shaped like a butterfly. You suspect drug-induced lupus, which one of these drugs is responsible for his condition?

A.Rifampicin

B.Isoniazid

C.Ethambutol

D.Streptomycin

E.Pyridoxine (Vitamin B6)

Answer:Isoniazid

Explanation:

Isoniazid can cause drug-induced lupus

Important for meLess important

This patient has TB and is started on anti-TB drugs. There are a few side-effect profiles which are specific to these drugs.

Rifampicin- this is a CYP450 enzyme inducer and can stain secretions such as sweat or urine an orange-red colour.

Isoniazid- this is a CYP450 enzyme inhibitor and can cause drug-induced lupus and peripheral neuropathy. Therefore pyridoxine is given which is a vitamin B6 and this reduces the risk of neuropathies.

Streptomycin- this is an aminoglycoside which is toxic to kidney and ears.

Pyridoxine- This is a supplement and does not cause drug-induced lupus.

Question:

A 60-year-old man presents with a 2-week history of dyspnoea and leg swelling. On examination, he has a raised JVP that doesn't fall with inspiration. His lung bases are clear and a pericardial knock is heard on auscultation. His only past medical history is angina for which he was recently investigated with a coronary angiogram.

Given this presentation, which of the following is the most likely cause of his presentation?

A.Constrictive pericarditis

B.Acute heart failure

C.Acute pericarditis

D.Infective endocarditis

E.Cardiac tamponade

Answer:Constrictive pericarditis

Explanation:

Kussmaul's sign can be used to differentiate cardiac tamponade and constrictive pericarditis

Important for meLess important

This question is about a man presenting with dyspnoea, peripheral oedema and a positive Kussmaul's sign (the raised JVP that doesn't fall with inspiration). These are all classic features of constrictive pericarditis. While the history is fairly short for constrictive pericarditis, it is not that uncommon, with most cases developing over months but sometimes days. Another factor that indicates constrictive pericarditis is his recent history of cardiac catheterisation for his coronary angiogram. Recent cardiac surgery (including cardiac catheterisation) is a common cause for constrictive pericarditis.

Acute heart failure would present with crackles in the lung bases due to fluid overload and there is no obvious cause of acute heart failure.

Acute pericarditis commonly presents with substernal pain that worsens on inspiration or lying flat. It is also typically relieved by sitting up and leaning forward.

Infective endocarditis classically presents with fatigue, flu-like symptoms and examination findings of infective endocarditis (such as a new or changing murmur or splinter haemorrhages)

Cardiac tamponade can present quite similarly, with anxiety, fatigue and oedema. This can progress to dyspnoea, tachycardia, and tachypnoea. Cardiac tamponade is often Kussmaul's sign negative in comparison to constrictive pericarditis. It would also likely have signs such as pulsus paradoxus.

Question:

A 3-year-old is admitted with a fracture involving the physis, metaphysis and epiphysis of their right tibia.

According to the Salter-Harris classification, what type of fracture is this?

A.Salter-Harris I

B.Salter-Harris II

C.Salter-Harris III

D.Salter-Harris IV

E.Salter-Harris V

Answer:Salter-Harris IV

Explanation:

Salter Harris 4 fractures are a paediatric fracture through the physis, metaphysis and epiphysis of a growth plate, with a poor prognosis

Important for meLess important

This fracture is a Salter-Harris IV fracture since it involves the physis, metaphysis and epiphysis of the bone. A more detailed outline of the Salter-Harris classification is in the notes below.

Question:

A 60-year-old man attends the hospital with haematemesis. His Hb is 115 g/L and his urea is 11 mmol/L. He is haemodynamically stable and is admitted from the Emergency Department to the Medical Admissions Unit.

He undergoes an endoscopy the next day which finds varices that are subsequently banded and he is discharged back to the ward. The patient asks you if this will happen to him again.

What scoring system can be used to help answer this patient's question?

A.ABCD2

B.GRACE

C.Glasgow-Blatchford

D.Oakland

E.Rockall

Answer:Rockall

Explanation:

Upper GI bleed: the Rockall score is used after endoscopy and provides a percentage risk of rebleeding and mortality

Important for meLess important

Rockall score is correct. This is used after endoscopy and utilises information such as the patient's age, observations, comorbidities and the endoscopy result to provide an estimation of rebleeding risk and mortality.

ABCD2 is incorrect. The ABCD2 score estimates the risk of stroke in the days following a transient ischaemic attack (TIA).

GRACE is incorrect. The GRACE score uses 8 variables to assess 6-month mortality following acute coronary syndrome (ACS).

Glasgow-Blatchford is incorrect. The Glasgow-Blatchford score is used before endoscopy. It helps assess patients with suspected upper GI bleeds who are deemed 'lower risk' and could be managed as outpatients.

Oakland is incorrect. The Oakland score for safe discharge predicts readmission risk for patients admitted with lower GI bleeding.

Question:

A 37-year-old man presents to his general practitioner with a headache and thick nasal discharge that has been present for six days. On further questioning, he describes the headache as a frontal pressure pain which is worse on bending forward. He denies ever having a cough or generalised malaise. His heart rate is 62/min, respiratory rate 13/min, blood pressure 127/63 mmHg and temperature 36.2 ºC. He has a past medical history of asthma that he controls with his salbutamol inhaler.

Given the most likely diagnosis, which one of the following is the correct management plan?

A.Analgesia and abundant fluids

B.Co-amoxiclav

C.Intranasal corticosteroids

D.Intranasal decongestants and oral corticosteroids

E.Phenoxymethylpenicillin

Answer:Analgesia and abundant fluids

Explanation:

Antibiotics are not indicated in uncomplicated acute sinusitis

Important for meLess important

The correct answer is analgesia and abundant fluids. This patient is presenting with uncomplicated acute sinusitis. The classical signs and symptoms of this condition are facial pain (classically described as frontal pressure pain which is worse on bending forward), nasal discharge (usually thick and purulent) and difficulty breathing. As this infection is often of viral nature, antibiotics are not indicated unless the patient is severely unwell. In this case, the infection has been going on for less than ten days and his vital signs are normal, indicating that the infection is uncomplicated.

Co-amoxiclav is used in cases of acute sinusitis when the infection is particularly severe, especially when they are systemically very unwell, they have signs and symptoms of a more serious illness, or they are at high risk of complications.

Intranasal corticosteroids can be prescribed when the patient has an uncomplicated course but the condition lasts more than ten days. In that case, the clinician can consider prescribing a high-dose nasal corticosteroid for 14 days for adults and for children aged 12 years and over.

Intranasal decongestants and oral corticosteroids are incorrect options. There is no evidence that intranasal decongestants are an effective treatment and oral corticosteroids are never indicated as treatment of acute sinusitis.

Phenoxymethylpenicillin is the first-line antibiotic for the treatment of complicated acute sinusitis. As this patient is systemically well there is no need to prescribe it at present.

Question:

A 56-year-old woman presents with a three week history of intermittent chest pains. She is normally fit and well and takes no regular medications. The pains are described as 'acid burning' in the retrosternal area and seem to have no pattern, being present both at rest and also during exertion. She last experienced the pain this morning whilst walking to the surgery but is currently pain free. Examination of the cardiorespiratory system is unremarkable, with a blood pressure of 130/76 mmHg,

An ECG is done in the surgery.

© Image used on license from Dr Smith, University of Minnesota

What is the most appropriate management?

A.Start the patient on aspirin 75mg od, given a trial of GTN and review the patient in one week

B.Reassure the patient that the ECG is normal + start the patient on ibuprofen and review next week

C.Reassure the patient that the ECG is normal + start the patient on a proton pump inhibitor and review next week

D.Admit the patient to hospital

E.Book an urgent echocardiogram

Answer:Admit the patient to hospital

Explanation:

No one is expecting F1/F2s to be experts at reading ECGs. We do however need to recognise what is probably normal and what is not. Whilst the computer analysis which accompanies most ECGs nowadays is often instructive it is by no means infallible.

The T waves in V2 + V3 are very large or 'hyperacute' to use the cardiology lingo. This is often the first change seen with myocardial ischaemia.

This patients ECG 30 minutes later is shown below:

© Image used on license from Dr Smith, University of Minnesota

Question:

A 72-year-old man attends his GP with urinary frequency, mild incontinence and frequently wakes at night to urinate. A rectal exam shows an enlarged and non-tender prostate. A diagnosis of benign prostatic hyperplasia is made and the patient is commenced on finasteride.

Which of the following best describes the mechanism of action of finasteride?

A.It is a 5-alpha reductase inhibitor

B.It is a competitive antagonist of muscarinic acetylcholine receptors

C.It inhibits cGMP specific phosphodiesterase

D.It is a selective alpha-1 receptor antagonist

E.It binds to dihydrofolate reductase

Answer:It is a 5-alpha reductase inhibitor

Explanation:

Finasteride is a 5 alpha reductase inhibitor which converts testosterone into DHT

Important for meLess important

Finasteride is a 5-alpha reductase inhibitor given to patients suffering from benign prostatic hyperplasia. By blocking 5-alpha reductase it stops the conversion of testosterone to dihydrotestosterone, thereby reducing the size of the prostate.

Trimethoprim works by binding to dihydrofolate reductase, therefore, interfering with bacterial DNA synthesis.

Tamsulosin is an alpha blocker which selectively blocks the alpha 1 receptors in the bladder neck and prostate causing a relaxation of the smooth muscle.

Oxybutynin has a direct spasmolytic effect on the bladder smooth muscle by competitively antagonising the muscarinic receptors on the bladder.

Finally sildenafil inhibits cGMP specific phosphodiesterase type 5 therefore helping to improve blood flow to the penis to help with erectile dysfunction.

Question:

A 37-year-old lady, Mrs Halen is referred to the emergency department by her GP. She reports that when she awoke in the morning her eyes felt like they were moved to one side. Since then, she has felt very dizzy as if the room is spinning and she has been vomiting almost non-stop. She has a dull headache generally around the whole head which came on gradually this morning and is 4/10 severity. She has not experienced photophobia, phonophobia or a rash. She has a history of migraines which present as severe right-sided throbbing head pain but reports that pain to be different from this.

She reports being well prior to this episode, other than a mild cold a week ago. She reports a 3 day history of ringing in her right ear and slight muffling of her hearing. She has not noticed any feeling of pressure in the ear. She says that the ear is not painful. Otoscopy examination is normal.

Mrs Halen is given promethazine which improves her symptoms of vertigo and vomiting.

Which condition is the likely cause of her symptoms?

A.Benign paroxysmal positional vertigo

B.Meniere’s disease

C.Migrainous vertigo

D.Otitis media

E.Viral labyrinthitis

Answer:Viral labyrinthitis

Explanation:

Acute viral labrynthitis: sudden onset horizontal nystagmus, hearing disturbances, nausea, vomiting and vertigo

Important for meLess important

This condition is viral labyrinthitis, which typically presents as sudden onset horizontal nystagmus, hearing disturbances, nausea, vomiting and vertigo. Patients will typically present with symptoms such as a previous ear infection, tinnitus, or previous coryzal symptoms.

Meniere's disease can present in a similar manner, but usually patients will report a feeling of pressure felt deep inside the ear. Meniere's disease is likely to result in recurring episodes of symptoms, whilst this is less likely with labyrinthitis.

Migrainous vertigo is unlikely given that this lady reports a very different headache to her usual migrainous headaches. Additionally other symptoms such as the hearing loss and horizontal nystagmus also make this less likely.

Otitis media is unlikely given that she has no ear pain.

Benign paroxysmal positional vertigo can cause nausea and vertigo but usually occurs only for a few seconds and with movement.

Question:

A male and female couple attends genetic counselling due to a member of the family being diagnosed with sickle cell anaemia, an autosomal recessive condition. They are both found to be carriers of sickle cell anaemia. The woman is currently 13 weeks pregnant.

What is the probability that their child will be a carrier of sickle cell anaemia?

A.0%

B.25%

C.50%

D.75%

E.100%

Answer:50%

Explanation:

For autosomal recessive conditions, if both parents are carriers (heterozygote) there is a 50% chance of having a carrier (heterozygote) child

Important for meLess important

This question is testing calculations on the probability of inheritance for sickle cell anaemia. A punnet square could be useful in answering the question. As both parents are carriers of sickle cell anaemia, there is a 50% chance of the child also being a carrier.

0% is incorrect. As at least one of the parents is a carrier of sickle cell anaemia, there is a probability of >0% that the child will be a carrier of the condition.

25% is incorrect. When reviewing the punnet square for this autosomal recessive condition, it can be seen that there is a 25% probability of having the condition or being unaffected, but there is a 50% probability of being a carrier.

75% is incorrect - as described above, the probability of being a carrier is 50%.

100% is not correct. It is not possible to have a 100% probability of being a carrier of an autosomal recessive condition.

Question:

A 64-year-old patient presents to his GP with a worsening of his chronic cough over the last few days. He says that he frequently has episodes like this, and his normally-yellow sputum becomes thicker and slightly blood-tinged. He has had several courses of antibiotics for such episodes. His past medical history includes hypertension and bronchiectasis. On examination, the patient looks relatively well at rest but has a noticeable cough. Auscultation of the chest yields some crackles. Given the likely diagnosis and past history, the GP takes a sputum sample.

Which organism is most likely to be seen when cultured?

A.Haemophilus influenzae

B.Klebsiella pneumonia

C.Pseudomonas aeruginosa

D.Staphylococcus aureus

E.Streptococcus pneumoniae

Answer:Haemophilus influenzae

Explanation:

Bronchiectasis: most common organism = Haemophilus influenzae

Important for meLess important

Given the diagnosis here of an acute exacerbation of bronchiectasis, the correct answer is Haemophilus influenzae, as this is the most commonly isolated organism in patients with this condition.

Klebsiella pneumonia is also valid, but less commonly seen. With regards to exams and textbook answers, it is classically the organism associated with causing pneumonia in patients with alcohol dependence.

Pseudomonas aeruginosa is incorrect. Again, it is found in bronchiectasis patients, but less commonly. It is commonly isolated in patients with cystic fibrosis.

Staphylococcus aureus is less commonly isolated in bronchiectasis. It is a common cause of a wide variety of infective conditions, such as infective endocarditis and skin infections. It is also a common secondary bacterial cause of pneumonia following influenza.

Streptococcus pneumoniae is an alpha-haemolytic streptococcus. It is a common cause of pneumonia, meningitis and otitis media, but less commonly isolated from sputum cultures in patients with bronchiectasis.

Question:

A 38-year-old man is reviewed post-discharge in the acute medical unit after a recent admission with Streptococcus pneumoniae bacteremia. This is his second episode of Streptococcus pneumoniae sepsis in the last year. He has a past medical history of coeliac disease. He is not on any regular medications. He follows a gluten-free diet strictly but it is otherwise normal and well balanced. He does not smoke cigarettes or drink alcohol.

Clinical examination is unremarkable and he appears well.

Given the clinical history, what is his blood film likely to demonstrate?

A.Auer rods

B.Howell-Jolly bodies

C.Hypersegmented neutrophils

D.Schistocytes

E.Tear-drop poikilocytes

Answer:Howell-Jolly bodies

Explanation:

Target cells and Howell-Jolly bodies may be seen in coeliac disease → hyposplenism

Important for meLess important

Howell-Jolly bodies are the correct answer. The patient presents with recurrent streptococcal bacteremia, which is very unusual in a young person without an underlying cause. Hyposplenism is a recognized complication of coeliac disease, which predisposes patients to infection with encapsulated bacteria such as streptococcus pneumonia . A Howell-Jolly body is the finding of basophilic nuclear remnants in circulating erythrocytes and is typical of hyposplenism.

Auer rods is an incorrect answer. This is typical of acute promyelocytic leukaemia.

Hypersegmented neutrophils are not correct. This is typical of B12/folate deficiency. We are told he follows a gluten-free diet strictly and has a well-balanced diet and so malabsorption and poor intake is less likely to be a problem.

Schistocytes are not correct. These fragmented red blood cells are typical of thrombotic microangiopathies.

Tear-drop poikilocytes are not correct. This is a typical blood film appearance of myelofibrosis.

Question:

A baby is born at term via vaginal delivery with no complications, however he is still not showing signs of breathing at one minute. Heart rate is >100bpm, but he is floppy and cyanosed. What is the most appropriate next step in management?

A.Call for anaesthetist to intubate the baby

B.5 mouth-to-mouth rescue breaths

C.5 breaths of air via face mask

D.Start chest compressions

E.Suction airways

Answer:5 breaths of air via face mask

Explanation:

Airway suction should not be performed unless there is obviously thick meconium causing obstruction, as it can cause reflex bradycardia in babies. Chest compressions are not indicated, as the HR in this case is >100bpm. CPR should only be commenced at a HR < 60bpm. In cases where there are no signs of breathing and this is thought to be due to fluid in the lungs, five breaths should be given via a 250ml bag via face mask. This is a more effective and more hygienic method than using mouth-to-mouth in a hospital setting.

Question:

A woman has a vaginal delivery of her first child. Although the birth was uncomplicated, she suffers a tear which extends from the vaginal mucosa into the submucosal tissue, but not into the external anal sphincter. Which degree tear is this classed as?

A.First degree

B.Second degree

C.Third degree

D.Fourth degree

E.Fifth degree

Answer:Second degree

Explanation:

- 1st degree = tear within vaginal mucosa only

- 2nd degree = tear into subcutaneous tissue

- 3rd degree = laceration extends into external anal sphincter

- 4th degree = laceration extends through external anal sphincter into rectal mucosa

Question:

A 22-year-old woman presents with a red painful eye. She describes the pain as tearing. When asked to scale the degree of pain, she gave a score of 7 out of 10. She also reported that she uses contact lenses frequently.

What is the most appropriate next step?

A.Aciclovir

B.Advice on stopping wearing contact lenses permanently

C.Reassurance

D.Same-day ophthalmology referral

E.Urgent 'two-week wait' ophthalmology referral

Answer:Same-day ophthalmology referral

Explanation:

Contact lens wearers who present with a red painful eye should be referred to eye casualty to exclude microbial keratitis

Important for meLess important

We should refer this patient on the same day to a specialist for proper assessment to exclude microbial keratitis because the assessment of red eye in contact lens wearers is often difficult.

Aciclovir is an antiviral used in treating viral keratitis. However, this case can be caused by other microbes. Accordingly, specialist referral is needed to find the cause and treat it properly.

This patient should be advised to stop wearing contact lenses temporarily not permanently. Also, good contact lens hygiene should be encouraged.

Reassurance is not appropriate as this case can be microbial keratitis which is a sight-threatening condition if left untreated.

Urgent referral refers to the two-week referral which is offered for suspected cancer patients.

Question:

A 32-year-old Afro-Caribbean woman with a history of keloid scarring following her caesarean section 1 year ago, wonders about her risk of forming similar keloid scars in the future.

Where would she be most likely to have a similar problem in the future?

A.Face

B.Neck

C.Shoulder

D.Sternum

E.Trunk

Answer:Sternum

Explanation:

Keloid scars are most common on the sternum

Important for meLess important

Keloid scars are more common in people with skin of darker pigment and are less likely to occur in older age and if incisions are made along relaxed skin tension lines, or 'langer's lines.'

The common sites in order of decreasing frequency are; sternum, shoulder, neck, face, extensor surface of limbs, trunk.

Therefore the correct answer here is the sternum.

Question:

A 62-year-old woman attends the sexual health clinic to discuss recent test results. She had a routine sexual health screen 4 weeks ago, which was 4 weeks after her last episode of sexual activity. She has no significant history in terms of her sexual health, and her last screen was 1 year ago.

Her test results are as follows:

Chlamydia (Urine) Negative

Chlamydia (Vaginal) Negative

Gonorrhoea (Urethral) Negative

Gonorrhoea (Vaginal) Negative

Gonorrhoea (Throat) Negative

Gonorrhoea (Rectal) Negative

Syphilis (RPR) Negative

Syphilis (VDRL) Negative

HIV (p24) Positive

HIV (Antibody) Positive

What is the next step in the management of this patient?

A.Commence anti-retroviral treatment only

B.Commence post-exposure prophylaxis only

C.Test HIV viral load only

D.Repeat HIV p24 and antibody in 12 weeks and commence anti-retroviral treatment today

E.Repeat HIV p24 and antibody today, and commence post-exposure prophylaxis today

Answer:Repeat HIV p24 and antibody in 12 weeks and commence anti-retroviral treatment today

Explanation:

If a combined HIV test is positive it should be repeated to confirm the diagnosis

Important for meLess important

This woman has initial tests that show as positive for HIV. The tests used are known as the combined HIV test - it looks at both antigen and antibodies for infection. If these are initially positive, they should be repeated for accuracy. However, this must not delay the start of anti-retroviral treatment, which should be commenced as soon as HIV is discovered. Therefore, the correct answer is to repeat HIV p24 in 12 weeks and commence anti-retroviral treatment.

Commencing anti-retroviral treatment only is incorrect. One positive combined test always mandates another one to improve reliability and accuracy.

Commencing post-exposure prophylaxis only is incorrect. This is a treatment that can be started 72 hours after possible exposure (i.e. after recent high-risk sexual activity). Since this woman had these blood tests done 4 weeks ago, and her previous episode of sexual activity was 4 weeks before this, post-exposure prophylaxis cannot be started.

HIV viral load only is incorrect. This does not address the need to investigate the positive syphilis screening results. Testing for the HIV viral load is sensible, and some centers may do this at the same time as repeating the combined HIV test, or they may wait until the second results come back.

Repeating HIV p24 and antibody, and commencing post-exposure prophylaxis is incorrect. Whilst it is correct that the combined test needs to be repeated for accuracy, post-exposure prophylaxis cannot be taken here since it is over 72 hours since the exposure occurred.

Question:

A 58-year-old man presents to the emergency department following a head injury. One and a half hours ago he tripped over a spade while crossing his garden and hit his head on a wooden fence.

He vomited once immediately after the incident and once more on his way to the emergency department. He has no other symptoms and is on no medication.

On assessment, he responds and opens his eyes spontaneously. He is able to move all limbs normally. His pupils are equal and reactive to light. There are no external signs of injury.

What is the most appropriate next step regarding imaging?

A.Contrast CT head within 1 hour

B.Contrast CT head within 8 hours

C.No imaging required

D.Non-contrast CT head within 1 hour

E.Non-contrast CT head within 8 hours

Answer:Non-contrast CT head within 1 hour

Explanation:

Following a head injury, more than 1 episode of vomiting is an indication for a CT head within 1 hour

Important for meLess important

Non-contrast CT head within 1 hour is correct. This patient has had more than one episode of vomiting since the head injury, this is an indication for a CT head within 1 hour as per the NICE guidelines.

Contrast CT head within 1 hour and contrast CT head within 8 hours are incorrect. Non-contrast CT head is usually the CT head of choice in head injury.

No imaging required is incorrect. If this patient had only had one episode of vomiting then there would be no indication for a CT head. However, two episodes of vomiting mean a CT head is required in 1 hour.

Non-contrast CT head within 8 hours is incorrect. This would be indicated if the patient had a history of coagulopathy or was taking anticoagulation, had retrograde amnesia, or the mechanism of injury was dangerous, all in the absence of vomiting and other adverse signs such as neurological deficits and seizures. Since this patient has had more than 1 episode of vomiting, a CT head is indicated within 1 hour.

Question:

An 82-year-old woman is reviewed on the ward as she has been experiencing painful, bleeding gums. Her current medications include paracetamol, nystatin, aciclovir, co-trimoxazole and warfarin. She is currently on a course of antibiotics. Her INR taken this morning is shown below:

INR 8.3 Target range 2.0-3.0

Which of the following is the most appropriate management?

A.Continue warfarin

B.Stop warfarin and give intravenous (IV) vitamin K

C.Stop warfarin and give oral vitamin K

D.Stop warfarin and give prothrombin complex concentrate

E.Withhold warfarin for 1-2 doses and restart at a lower dose

Answer:Stop warfarin and give intravenous (IV) vitamin K

Explanation:

INR > 8.0 (minor bleeding) - stop warfarin, give intravenous vitamin K 1-3mg, repeat dose of vitamin K if INR high after 24 hours, restart when INR < 5.0

Important for meLess important

The correct answer is 'stop warfarin and give intravenous (IV) vitamin K'.

If a patient taking warfarin experiences minor bleeding and has an INR > 8.0, then their warfarin should be stopped, and they should be given IV vitamin K. This can be repeated the next day if the INR is still high. Warfarin should only be restarted when the INR is < 5.0.

Continuing the warfarin in this patient would be unsafe. Her INR is significantly raised, so the warfarin needs to be stopped and a reversal agent given due to the presence of minor bleeding.

'Stop warfarin and give oral vitamin K' would be the correct management for patients with an INR > 8.0 but without any bleeding present.

'Stop warfarin and give prothrombin complex concentrate' would be the correct management for patients taking warfarin with major bleeding. This would be given alongside IV vitamin K.

'Withhold warfarin for 1-2 doses and restart at a lower dose' would be the correct management for patients with an INR between 5.0 and 8.0 and no bleeding present.

Question:

A 26-year-old woman is asked to attend the emergency department by her GP following the results of some blood tests she had taken the day before. The results of these and her previous results are shown below:

Test Previous results Yesterday's results Reference range

Na+ 137 mmol/L 142 mmol/L (135 - 145)

K+ 4.7 mmol/L 4.3 mmol/L (3.5 - 5.0)

Bicarbonate 25 mmol/L 24 mmol/L (22 - 29)

Urea 6.4 mmol/L 15.3 mmol/L (2.0 - 7.0)

Creatinine 87 µmol/L 183 µmol/L (55 - 120)

She was started on ramipril two weeks ago due to a raised blood pressure. She feels slightly nauseous but otherwise has not been aware of any symptoms.

Which of the following is likely to be responsible for her blood results?

A.Bilateral renal artery stenosis

B.Glomerulonephritis

C.Lower urinary tract infection

D.Pyelonephritis

E.Renal calculi

Answer:Bilateral renal artery stenosis

Explanation:

After starting an ACE inhibitor, significant renal impairment may occur if the patient has undiagnosed bilateral renal artery stenosis

Important for meLess important

The correct answer is 'bilateral renal artery stenosis'.

Bilateral renal artery stenosis is a potential secondary cause of hypertension in young patients. If these patients are started on an angiotensin-converting enzyme (ACE) inhibitor before diagnosis, it can cause significant renal impairment - this is the likely cause of this patient's deranged U&Es.

Glomerulonephritis can be a renal cause of acute kidney injury. However, patients would typically present with features of either nephrotic or nephritic syndrome depending on the exact subtype.

A lower urinary tract infection would not cause renal impairment. Additionally, she would likely be complaining of symptoms such as increased urinary frequency, urgency and dysuria.

Pyelonephritis could cause renal impairment, however, she would likely be complaining of other symptoms such as fever, rigors and loin pain.

Renal calculi can cause renal impairment via obstruction. However, this is unlikely as she is not experiencing any symptoms suggestive of this, such as pain or haematuria.

Question:

A 75-year-old man presents to his GP with a scaly, red and itchy rash on his face. It is particularly prominent around his eyebrows. He has also noticed some dandruff and has tried anti-dandruff shampoo which has been unsuccessful in treating his symptoms.

His past medical history includes hypertension and hyperlipidaemia. He has no history of asthma or eczema.

Given the most likely diagnosis, which is the most appropriate first-line treatment?

A.Moisturising ointments

B.Oral corticosteroids

C.Topical calcineurin inhibitors

D.Topical ketoconazole

E.Topical metronidazole

Answer:Topical ketoconazole

Explanation:

Seborrhoeic dermatitis - first-line treatment is topical ketoconazole

Important for meLess important

This patient most likely has seborrhoeic dermatitis; scaly itchy red patches of skin in areas rich in oil-producing glands such as the face and scalp. The first-line treatment for this condition is topical ketoconazole.

Oral corticosteroids are reserved for severe cases of seborrhoeic dermatitis that are refractory to topical corticosteroids.

Moisturising ointment is the first-line treatment for eczema and is not useful in seborrhoeic dermatitis. This patient is unlikely to have developed eczema at the age of 75, with no past history.

Topical calcineurin inhibitors are powerful immunosuppressants useful in the treatment of atopic dermatitis that does not respond to initial therapy. In oral form, they are used in immunosuppression for prophylaxis of organ rejection in organ transplant patients. They would not be useful in the treatment of seborrhoeic dermatitis.

Topical metronidazole is typically used for the treatment of acne rosacea, not seborrhoeic dermatitis.

Question:

A 30-year-old woman presents to the Emergency Department with a one-day history of central chest pain. The pain is described as severe, non-radiating and eases on expiration. Clinical examination of her cardiorespiratory system is unremarkable other than a heart rate of 96 / min. An ECG shows widespread ST elevation associated with PR segment depression in the anterior, inferior and lateral leads. Bloods show the following:

Full blood count Normal

Urea and electrolystes Normal

Troponin I 0.4 ng/mL (< 0.2 ng/mL)

What is the most likely diagnosis?

A.Pulmonary embolism

B.Acute coronary syndrome

C.Hypertrophic obstructive cardiomyopathy

D.Acute pericarditis

E.Arrhythmogenic right ventricular cardiomyopathy

Answer:Acute pericarditis

Explanation:

A modest rise in troponin is seen in around one-third of patients with acute pericarditis. The widespread nature of the ECG changes (across coronary territories) points away from an ischaemic cause. It would also be very unusual for a 30-year-old woman to suffer an acute coronary syndrome.

Question:

An 82-year-old patient attends her GP surgery due to a rash that has developed over her anterior thighs in the past 3 weeks. She states that it is not painful or itchy but she is concerned as it does not blanch with the application of the 'glass test'. She states that she has had some flu-like symptoms recently so has spent much of her time in her chair under many blankets and with a hot water bottle on her lap.

On examination, you notice that the patient has a well-demarcated area of mottled erythema which appears net-like across her anterior thighs. The area is non-tender and non-blanching.

What is the most likely diagnosis of this lesion?

A.Erythema ab igne

B.Meningococcal septicaemia

C.Pressure ulcers

D.Psoriatic plaque

E.Viral exanthem

Answer:Erythema ab igne

Explanation:

Erythema ab igne is caused by infrared radiation and is commonly associated with hot water bottles or open fires

Important for meLess important

The most likely cause of this patients skin discolouration is erythema ab igne. There is a clear history of direct and repeated exposure to a heat source. Erythema ab igne is caused by overexposure to infrared radiation and is characterised by a reticulated area of hyperpigmentation or erythema with telangiectasia. The size and shape of the patches usually match that of the heat source, as in this patient who had a clearly demarcated area on her legs where she had been using a hot water bottle. Treatment is the removal of the heat source. If this is not done there is an increased risk of developing squamous cell carcinoma in the affected area.

Meningococcal septicaemia causes a purpuric rash and this is generally a late sign. This patient has a three-week history of this rash and therefore this diagnosis is highly unlikely. Furthermore, most cases of meningitis and meningococcal septicaemia occur in children, usually under 5s, although one-third of cases do occur in adults.

Pressure ulcers occur when tissue is put under pressure restricting blood flow. Although this patient has been less mobile than she would usually be, it is more likely that pressure ulcers would form on the posterior aspect of her legs. Furthermore, the reticulated pattern of the lesion in this patient makes a pressure ulcer less likely.

Psoriasis is a chronic, relapsing-remitting autoimmune skin disorder. Psoriasis plaques are itchy, well-demarcated, raised pink or red lesions often overlaid with silvery scaling. This does not match with the patient's history in this case.

Viral exanthems are widespread rashes that accompany viral illnesses. They are more likely to occur on the trunk than the extremities and are usually not in well-demarcated areas. This means that, despite this patient's flu-like illness, a viral exanthem is not the most likely diagnosis.

Question:

A 57-year-old woman is referred to urogynaecology with symptoms of urge incontinence. A trial of bladder retraining is unsuccessful. It is therefore decided to use a muscarinic antagonist.

Which one of the following medications is an example of a muscarinic antagonist?

A.Tolterodine

B.Teriparatide

C.Toremifene

D.Finasteride

E.Tamsulosin

Answer:Tolterodine

Explanation:

Other examples of muscarinic antagonists used in urinary incontinence include oxybutynin and solifenacin. Examples of muscarinic antagonists used in different conditions include ipratropium (chronic obstructive pulmonary disease) and procyclidine (Parkinson's disease).

Tamsulosin is an alpha blocker.

Question:

A 68-year-old man presents with sudden onset hemiparesis affecting the left face, arm and leg. On examination, you note left-sided hemiparesis and a left homonymous hemianopia. You also note lymphadenopathy and splenomegaly. Further investigations reveal an IgM paraprotein of 40 g/L and a skeletal survey shows no bone lesions. A blood test demonstrates:

Na+ 138 mmol/l

K+ 4.2 mmol/l

Ca2+ 2.45 mmol/l

Urea 4.4 mmol/l

Creatinine 96 µmol/l

What is the most likely underlying cause of the stroke?

A.Myeloma

B.Waldenstrom's macroglobulinaemia

C.Chronic lymphocytic leukaemia

D.Infective endocarditis vegetative embolism

E.Atrial myxoma

Answer:Waldenstrom's macroglobulinaemia

Explanation:

It is important to remember that strokes can be caused by hypercoagulable states and hyperviscosity.

A paraproteinaemia is most often seen in myeloma, although a few other lymphoproliferative disorders can be associated with this. In this case, the patient most likely has a type of lymphoma (lymphoplasmacytic lymphoma) producing excess IgM. Collectively the syndrome is called Waldenstrom's macroglobulinaemia, which usually also presents with bone marrow infiltration, splenomegaly and sometimes lymphadenopathy. In contrast to myeloma, it does not cause lytic bone lesions or hypercalcaemia. Further evidence against myeloma would be the nature of the paraprotein. A true IgM myeloma is very rare (IgG, IgA, and IgD being much more common).

Paraproteinaemias cause hyperviscosity of blood which increases the risk of ischaemic strokes, as demonstrated by this case.

Question:

A 59-year-old man with a known history of type 2 diabetes mellitus, atrial fibrillation and epilepsy presents as he is feeling generally unwell. His main complaint is a blue tinge to his vision. Which one of his medications is most likely to be responsible?

A.Phenytoin

B.Metformin

C.Sildenafil

D.Pioglitazone

E.Digoxin

Answer:Sildenafil

Explanation:

Visual changes secondary to drugs

blue vision: Viagra ('the blue pill')

yellow-green vision: digoxin

Important for meLess important

Question:

A 74-year-old obese man with a past medical history of chronic kidney disease, advanced COPD and type 2 diabetes mellitus presents with exertional chest pain and dizziness. On examination, he is found to have a loud ejection systolic murmur with absent S2.

An echocardiogram shows severe aortic stenosis with associated left ventricular hypertrophy.

What is the most suitable definitive management?

A.Commence aspirin and refer to rapid access chest pain clinic

B.Commence bisoprolol

C.Coronary artery bypass graft

D.Surgical aortic valve replacement

E.Transcatheter aortic valve replacement

Answer:Transcatheter aortic valve replacement

Explanation:

Symptomatic aortic stenosis:

surgical AVR for low/medium operative risk patients

transcatheter AVR for high operative risk patients

Important for meLess important

This patient has symptomatic severe aortic stenosis. This is a clinical indication for aortic valve replacement.

As the patient is obese and has multiple co-morbidities, transcatheter aortic valve replacement is favoured over surgical aortic valve replacement. Transcatheter aortic valve replacement has been shown to have a significantly reduced associated mortality after 2 years when compared to surgical aortic valve replacement. Therefore in high-risk patients, this option is preferred.

Commence aspirin and refer to rapid access chest pain clinic would be the appropriate management for suspected angina. In this case, echocardiography has shown aortic stenosis to be the likely cause of his symptoms, which is an indication for valve replacement. Coronary artery disease is often present alongside aortic stenosis, therefore most patients will have a coronary angiogram before aortic valve replacement.

Commence bisoprolol would not fix the aortic stenosis. There may be a role for beta-blockers after valve replacement, particularly if there are ongoing features of heart failure. However, in this scenario beta-blockers are likely to have minimal effect until the valve is replaced.

Coronary artery bypass graft is a treatment for coronary artery disease not aortic stenosis.

Question:

A 74-year-old man attends the general practice with his wife. She states that for the past 6 months he has gradually become more forgetful and recently got lost driving home from the local shop.

On further questioning, he has no slowness of movements or rigidity and acts appropriately around others. There are no impulsive behaviours or personality changes.

His only past medical history is hypertension for which he takes amlodipine.

Given the likely diagnosis, what finding would expect to find on a head CT?

A.Atrophy of the cortex and hippocampus

B.Atrophy of the frontal and temporal lobes

C.Hyper-attenuating area in the basilar cistern (Circle of Willis)

D.Several, small, hypo-attenuating areas spread out in the cerebral cortex

E.Widespread cerebral oedema

Answer:Atrophy of the cortex and hippocampus

Explanation:

Alzheimer's disease causes widespread cerebral atrophy mainly involving the cortex and hippocampus

Important for meLess important

Atrophy of the cortex and hippocampus is correct. The history describes Alzheimer's disease. This is supported by the gradual onset of symptoms involving forgetfulness, a common presenting complaint, in the absence of impulsivity, social disinhibition, and personality changes. Alzheimer's disease can have positive findings on head CT or head MRI that include cerebral atrophy (shrinking) mainly in the regions of the cortex and hippocampus. The hippocampus is one of the areas responsible for our memory, hence shrinking of this area produced symptoms of memory loss.

Atrophy of the frontal and temporal lobes is incorrect. This would be an expected finding if the history described frontotemporal dementia. This generally presents early in life ~40-50years old and is associated with social disinhibition (acting inappropriately e.g. inappropriate sexual behaviour). This is due to atrophy of the frontal lobe which controls these actions.

Hyper-attenuating area in the basilar cistern (Circle of Willis) is incorrect. This is seen in subarachnoid haemorrhage. There are no elements in this history suggestive of one. This usually presents with a thunderclap headache that can be associated with loss of consciousness. Hyper-attenuating (bright areas) areas are seen in the basilar cistern and spread out via the Sylvian fissures forming the classic 'star sign' as blood fills the subarachnoid space.

Several, small, hypo-attenuating areas spread out in the cerebral cortex is incorrect. The CT scan described here is that of many transient ischaemic attacks (TIAs) or previous strokes. These can leave evidence on head CT of areas of previous ischaemic or infarction seen by the hypo-attenuating (darker cortex). Given the patient has no past medical history consistent with this it is an unlikely diagnosis. Furthermore, vascular dementia is usually a step-wise progression due to sudden deterioration with future TIA or strokes.

Widespread cerebral oedema is incorrect. This would imply the patient had raised intracranial pressure. This can be caused by a number of conditions such as a brain tumour, infection (such as encephalitis), brain injury, idiopathic intracranial hypertension, and bleeding. Raised intracranial pressure would present with headaches, nausea with or without vomiting, and fluctuating consciousness which is not seen here.

Question:

A 65-year-old woman presents to the GP with urinary incontinence. Her symptoms occur all day, and she has also noticed that when she does manage to go voluntarily her flow of urine is very poor. On examination, the GP can feel a distended bladder even though the patient has just urinated while waiting for the appointment.

Given this woman's presentation, what is the most likely diagnosis?

A.Urge incontinence

B.Overactive bladder syndrome

C.Stress incontinence

D.Mixed incontinence

E.Urinary overflow incontinence

Answer:Urinary overflow incontinence

Explanation:

Bladder still palpable after urination, think retention with urinary overflow

Important for meLess important

This elderly woman is presenting with symptoms of urinary incontinence. This is confirmed by the palpable bladder after urination. The most common causes of urinary overflow incontinence are prostate problems, however, in this case as she is a woman this is not possible. Other causes can include nerve damage causing a neurogenic bladder such as complication of diabetics, chronic alcoholics or surgery to the pelvic area.

Urge incontinence would be preceded by a sudden need to urinate. This is not noted as the patient has a constant incontinence.

An overactive bladder syndrome is a form of urge incontinence caused by an overactive bladder, it too would be associated with incontinence, polyuria and nocturia.

Stress incontinence would be likely associated with raised intraabdominal pressure, such as a sneeze or a cough. This is not noted in this case.

As no symptoms of urge incontinence or stress incontinence were present, a diagnosis of mixed incontinence is not suggested.

Question:

Which of the following statements relating to Gardners syndrome variant of familial adenomatous polyposis coli is false?

A.It is an autosomal dominant condition

B.Patients may develop retroperitoneal desmoid tumours

C.The vast majority of the polyps are benign and thus the risk of colorectal cancer is small

D.Patients are at increased risk of thyroid cancer

E.It is characterised by a mutation in the APC gene

Answer:The vast majority of the polyps are benign and thus the risk of colorectal cancer is small

Explanation:

The multiple polyps increase the risk of malignancy and most patients should undergo a colectomy.

Question:

A 12-year-old girl presents to her general practitioner with a 4-month history of a dull, aching pain and swelling in the distal aspect of her right thigh. She is otherwise well and has a family history of retinoblastoma.

A knee radiograph identifies a triangular area of new subperiosteal bone in the metaphyseal region of the femur, with a 'sunburst' pattern.

Which of the following is the most likely diagnosis?

A.Chondrosarcoma

B.Ewing's sarcoma

C.Giant cell tumour

D.Osteochondroma

E.Osteosarcoma

Answer:Osteosarcoma

Explanation:

Osteosarcoma - malignant tumour that occurs most frequently in the metaphyseal region of long bones prior to epiphyseal closure

Important for meLess important

The correct answer is osteosarcoma, this is the most common primary malignant bone tumour in children and adolescents which commonly affects the metaphyseal region of long bones. Radiographs classically show Codman triangle (a triangular area of new subperiosteal bone) with an associated sunburst appearance. The family history is significant as osteosarcoma is associated with the retinoblastoma gene.

Chondrosarcoma is incorrect. This is a malignant tumour of cartilage, which most commonly affects the axial skeleton and not the diaphysis of long bones. This type of tumour is also more common in middle-age.

Ewing's sarcoma is incorrect as this is likely to show an 'onion skin' appearance on x-ray. For reference, this also shows the presence of EWS-FLI1 protein on fine-needle aspiration of the tumour.

Giant cell tumour is incorrect. This is a benign tumour of multinucleated giant cells which occurs most frequently in the epiphyses of long bones and shows a 'double-bubble' or 'soap bubble' appearance on x-ray. This diagnosis is also less likely as giant cell tumours are more commonly seen in patients aged 20-40 years old.

Osteochondroma is incorrect. This is the most common benign bone tumour and while it is most in males aged under 20 years old, it often presents with cartilage-capped bony projection on the external surface of a bone and is therefore unlikely given the presentation.

Question:

A 26-year-old patient presents to the Emergency Department in the early hours of the morning with severe flank pain and rigors. She is diagnosed with pyelonephritis and admitted to the ward for intravenous antibiotics and fluids. Later that day, the patient reports that she is feeling better and wishes to leave, as she is due to go on holiday tomorrow. You advise that she is likely to require a longer course of treatment to fully recover, explain the potential risks of leaving and try to encourage her to stay. She seems to understand your concerns and the potential risks involved but despite this, maintains her desire to leave. She explains that she will seek further medical help if she requires it over the next few days. What is the most appropriate action to take?

A.Call her next of kin and ask for their assistance persuading her to stay

B.Insist she stays on the ward for further treatment, calling security to prevent her from leaving if necessary

C.Suggest that she must remain overnight but can leave if she still feels better in the morning, asking a healthcare assistant to bleep you if she attempts to leave before this

D.Allow her to leave the hospital after signing the relevant self-discharge documentation

E.Ask the ward clerk to contact the airline and try to rearrange her flights for the following day, allowing her extra time to recover

Answer:Allow her to leave the hospital after signing the relevant self-discharge documentation

Explanation:

The General Medical Council (GMC) publish no specific guidance on how to manage instances of self-discharge of patients. Information can be drawn from the Mental Capacity Act (2005) however, which stipulates that adult patients should be assumed to have capacity unless proven otherwise. This means they have full control over their treatment and can make an informed choice to refuse this if they so wish.

As a junior doctor, you should explain the risks involved with self-discharge and to the best of your ability, try to persuade the patient to stay. If, like in this situation, they have capacity and still wish to leave, they should complete any relevant documentation (usually a 'self-discharge form', specific to the hospital trust in which you work) before leaving the hospital site. A letter can be written to their GP and 'To Take Away (TTA)' medication should be prescribed as normal.

References:

Department of Health. Mental Capacity Act. London: HMSO, 2005.

Raine T, Dawson, J, Sanders S, Eccles S. Oxford Handbook for the Foundation Programme. Oxford: Oxford University Publishing, 2014. p. 20.

Question:

A 65-year-old man with type 2 diabetes attends his annual diabetic review. His blood glucose control has been very poor and he is about to be started on insulin. Which of the following should be given to this man when he receives his insulin?

A.200ml of orange juice

B.Glucagon kit

C.A small packet of sweets e.g. Jelly Babies

D.A freezer box to help store his insulin

E.Diabetic insoles

Answer:Glucagon kit

Explanation:

Every person treated with insulin should have a glucagon kit for emergencies

Important for meLess important

This question is asking about the use of insulin in patients. According to NICE:

In addition to the correct insulin preparation, people with type 2 diabetes who are on insulin treatment will also require glucose and/or a glucagon kit for treating hypoglycaemia

The orange juice or sweets are other options that will act as a sugary snack in the event of a hypo, however, these will not need to be provided by the GP/Pharmacy.

A freezer box to help store the insulin is not necessary as insulin is stored in a normal fridge and not in the freezer.

All patients on insulin do not necessarily require diabetic insoles, only patients with confirmed diabetic foot disease should be referred to orthotics.

Question:

A 28-year-old lady comes into your clinic. She expresses concern that her periods are getting heavier and that her nosebleeds are becoming more frequent. On examination, she is well and afebrile and has a non-blanching rash on the flexor surface of the arms. Past medical history includes diagnosis of asthma and lupus. A blood test reveals the following:

Hb 118 g/l

Platelets 120 \* 10^9/l

WCC 6 \* 10^9/l

APTT 30 (27-35)

PT 12 (11-14)

What is the most likely diagnosis?

A.Idiopathic thrombocytopenic purpura (ITP)

B.Thrombotic thrombocytopenic purpura (TTP)

C.Von Willebrand disease (VWD)

D.Haemophilia A

E.Vitamin K deficiency

Answer:Idiopathic thrombocytopenic purpura (ITP)

Explanation:

The most common cause of an isolated thrombocytopenia is ITP

Important for meLess important

ITP can be clinically diagnosed with an isolated thrombocytopenia. Many patients may present with anaemia and purpura due to the blood loss and low platelets. APTT is typically increased in both haemophilia A, VWD and vitamin K. TTP is a serious condition with anaemia, fever, purpura and cerebral dysfunction.

Question:

A baby is delivered on the ward and on the neonatal examination a systolic heart murmur is heard. An echocardiogram shows right atrial hypertrophy and the septal and posterior leaflet of the tricuspid valve attached to the right ventricle. What is this condition most commonly known as?

A.Wolff-Parkinson-White

B.Ebstein's anomaly

C.AVSD

D.Kartagener's syndrome

E.Eisenmenger's syndrome

Answer:Ebstein's anomaly

Explanation:

This question tests your knowledge of cardiac conditions. The correct answer is Ebstein's anomaly which is a congenital condition where the tricuspid valve leaflets are attached to the walls and septum of the right ventricle. This may lead to tricuspid regurgitation and in 50% of patients Wolff-Parkinson-White syndrome is seen, which is a pre-excitation syndrome caused by an accessory electrical pathway between the atria and the ventricles which may lead to an irregular heart rate. A risk factor for developing Ebstein's anomaly is the mother taking lithium during the first trimester of pregnancy.

Question:

A 79-year-old man is reviewed in the ward after undergoing abdominal surgery. He appears alert and comfortable. On examination, you can see a stoma on the midline of his lower abdominal wall, spouted from the skin.

His heart rate is 57/min, respiratory rate 15/min, blood pressure 126/92 mmHg and temperature is 36.6 ºC. The stoma is functioning with no surrounding skin irritation.

What is the most likely type of stoma being described?

A.End colostomy

B.Loop colostomy

C.Loop ileostomy

D.Nephrostomy

E.Urostomy

Answer:Loop ileostomy

Explanation:

An ileostomy is spouted to prevent the skin from coming into contact with the enzymes in the small intestine

Important for meLess important

The correct answer is a loop ileostomy. Ileostomies are usually located on the right iliac fossa, have a spouted shape and contain liquid faecal material. The patient has most likely undergone an anterior resection (removal of upper rectum and sigmoid colon), that necessitates a defunctioning loop ileostomy that will be reversed later.

To differentiate between a colostomy and an ileostomy you can use multiple hints. Usually, an ileostomy is on the right iliac fossa whilst a colostomy is on the left iliac fossa. But they can be located on any part of the abdomen, hence to differentiate between them you should look at the output. If it is spouted, it means that you are looking at an ileostomy because the small bowel's contents are irritant to the skin, hence the spouting protects it. If it is flush to the skin, you are looking at a colostomy, because the large bowel's contents are not irritant. Additionally, the faecal material will be liquid in an ileostomy, whilst a colostomy would contain more solid contents.

An end or a loop colostomy would be flush to the skin and it would contain semi-solid faecal matter.

A nephrostomy is used in urology for patients with kidney stones and signs of obstructive nephropathy or significant infection. It is a small tube inserted directly into the renal pelvis and collecting system, relieving the obstruction proximally to the stone.

A urostomy is a bag collecting urine, usually used after bladder removal. In these cases, the ureters are resected from the bladder and connected to a segment of the small bowel, where they open. Then the small bowel is brought out through an opening in the abdominal wall, which is connected to a urostomy to allow the patient to empty the contents.

Question:

Which of the following factors is least useful in assessing patients with a poor prognosis in community-acquired pneumonia?

A.Abbreviated Mental Test Score (AMTS) of 6/10

B.Urea of 11.4 mmol/l

C.C-reactive protein of 154

D.Respiratory rate of 30

E.Aged 75 years old

Answer:C-reactive protein of 154

Explanation:

The C-reactive protein is the least useful of the above in predicting mortality in patients with community-acquired pneumonia. The rest of the answers are part of the CURB-65 criteria

Question:

A 50-year-old man is admitted to hospital with a 5-day history of worsening abdominal pain. Over the past 24 hours, the pain has become very severe. On examination, his pulse is 110/min, blood pressure 110/62 mmHg and temperature 37.7ºC. Bloods show the following:

Hb 105 g/l

Platelets 452 \* 109/l

WBC 16.3 \* 109/l

CRP 263 mg/l

The abdominal film is shown below:

© Image used on license from Radiopaedia

What is the most likely underlying disorder?

A.Perforated diverticulum

B.Sigmoid volvulus

C.Ulcerative colitis with toxic megacolon

D.Spontaneous bacterial peritonitis

E.Crohn's disease

Answer:Ulcerative colitis with toxic megacolon

Explanation:

This patient had toxic megacolon secondary to underlying ulcerative colitis - note the dilated transverse colon. The abdomen demonstrates a markedly dilated transverse colon (9 cm) with an impression of slight dilatation of the descending colon with some 'thumb printing' in the wall. No free subphrenic gas is seen.

They went on to have a subtotal colectomy.

Question:

A 63-year-old man presents to the emergency department following a head injury. Two hours ago he tripped over a spade in his garden and hit his head on a wooden fence.

He cannot remember what happened in the 20 minutes after the incident but has no issues with memory of events leading up to the incident and no current memory problems. On questioning, he has no other symptoms.

On assessment, he responds and opens his eyes spontaneously. He is able to move all limbs normally. His pupils are equal and reactive to light. There are no external signs of injury.

What is the correct imaging to request?

A.Contrast CT head within 1 hour

B.Contrast CT head within 8 hours

C.No imaging required

D.Non-contrast CT head within 1 hour

E.Non-contrast CT head within 8 hours

Answer:No imaging required

Explanation:

Over 30 minutes retrograde amnesia is an indication for a CT scan following a head injury, not anterograde amnesia

Important for meLess important

No imaging required is correct. This patient has no indications for a CT head as they have no features such as seizures, evidence of skull fracture, or focal neurological deficits, and their Glasgow coma score (GCS) is 15. Although he presents with anterograde amnesia (memory problems of events since the incident), it is over 30 minutes of retrograde amnesia (memory problem of events before the incident) that is an indication for a non-contrast CT within 8 hours, not anterograde amnesia. An example of retrograde amnesia would be if he was unable to recall what happened leading up to the injury, not after.

Contrast CT head within 1 hour and Contrast CT head within 8 hours are incorrect. Non-contrast CT head is usually the imaging of choice in head injury. Furthermore, there are no indications for a CT scan.

Non-contrast CT head within 1 hour is incorrect. If this patient's GCS was less than 15 on assessment then he would need a CT head, however, as he is responding and opening his eyes spontaneously and is able to move his limbs normally you can assume his GCS is 15. As mentioned above, there are no features that would indicate a CT head within 1 hour.

Non-contrast CT head within 8 hours is incorrect. If this patient was on an anticoagulant he would need a CT head within 8 hours. As mentioned above, if this patient were to have experienced more than 30 minutes of retrograde amnesia, a CT head would be indicated, however, this patient has experienced anterograde amnesia, which does not qualify for a CT head.

Question:

You see a 32-year-old patient in haematology clinic following four concurrent miscarriages. Routine blood tests sent by the GP demonstrate a prolonged APTT, and further tests reveal the presence of lupus anticoagulant immunoglobulins. A diagnosis of anti-phospholipid syndrome is made, and you suggest that she should commence long-term pharmacological thromboprophylaxis. The patient has no previous history of venous or arterial clots.

Which would be the most suitable form of thromboprophylaxis?

A.A direct oral anticoagulant (DOAC)

B.Low-dose aspirin

C.Low-molecular-weight heparin

D.Warfarin, target INR 2-3

E.Warfarin, target INR 3-4

Answer:Low-dose aspirin

Explanation:

Patients with anti-phospholipid syndrome who haven't had a thrombosis previously are generally on low-dose aspirin

Important for meLess important

Low-dose aspirin is the correct answer. If a patient with anti-phospholipid syndrome has never had a previous clot, low-dose aspirin is recommended as thromboprophylaxis.

A direct oral anticoagulant (DOAC) is incorrect; studies have shown greater incidence of clots in anti-phospholipid patients on DOACs when compared with warfarin.

Low-molecular-weight heparin is incorrect. Although this could be considered in an anti-phospholipid patient with history of previous clots, it is not recommenced for long-term use given that it is administered subcutaneously.

Warfarin, target INR 2-3 is incorrect. This would be an appropriate target INR for a patient with anti-phospholipid syndrome, however warfarin is only indicated if the patient has previously suffered venous or arterial clots.

Warfarin, target INR 3-4 is incorrect. Warfarin is only indicated if the patient has previously suffered venous or arterial clots, and this target INR is too high; 2-3 is an appropriate range in anti-phospholipid syndrome.

Question:

A 36-year-old man is starting treatment for tuberculosis and is counselled about the respective side effects which can occur with each medication. As one of the medications is known to deplete and oppose pyridoxine in the body and cause peripheral neuropathy, it is decided to start the patient on pyridoxine supplements to reduce the risk.

What drug is responsible for this?

A.Ethambutol

B.Isoniazid

C.Pyrazinamide

D.Rifampicin

E.Streptomycin

Answer:Isoniazid

Explanation:

The risk of peripheral neuropathy with isoniazid can be reduced by prescribing pyridoxine

Important for meLess important

This scenario describes a patient starting management for tuberculosis, which requires multiple drugs, which can all cause different side effects. Importantly, peripheral neuropathy can arise with the use of isoniazid. This is due to isoniazid inhibiting the action of pyridoxine (vitamin B6) in the body, and therefore supplementation of pyridoxine is important for reducing the risk of developing this side effect.

Ethambutol is not the single best answer. Ethambutol can be used in the first-line management of tuberculosis. Whilst nerve disorders may occur with this drug, textbooks often highlight that ethambutol can also cause visual impairment and affect red-green discrimination.

Pyrazinamide is not correct. Pyrazinamide is another first-line drug for tuberculosis which can cause hepatotoxicity and hepatitis. The opposition of pyridoxine (vitamin B6) in the body is not typical.

Rifampicin is incorrect. Rifampicin is an antibiotic often used in tuberculosis. It can cause body secretions and urine to turn orange. It is not typically described to cause peripheral neuropathy secondary to opposition to the body's pyridoxine.

Streptomycin is not the single best answer. Streptomycin can be used in resistant tuberculosis. It can result in multiple side effects, including peripheral neuropathy, however, isoniazid is typically described as opposing pyridoxine and requires supplementation to reduce the risk of peripheral neuropathy.

Question:

A 59-year-old male presents with a three-month history of progressive slurring of speech and difficulty swallowing. The patient finds swallowing liquids more difficult than solids, experiencing multiple episodes of choking when drinking water. On examination, there is facial weakness and hypophonic speech. The ocular examination reveals no ptosis or ophthalmoplegia.

What is the most likely cause of this patient's symptoms?

A.Achalasia

B.Oesophageal carcinoma

C.Lambert-Eaton myasthenic syndrome

D.Motor neurone disease

E.Myasthenia gravis

Answer:Motor neurone disease

Explanation:

Eye movements are typically spared in motor neurone disease

Important for meLess important

This is a common presentation of bulbar-onset amyotrophic lateral sclerosis (ALS). Patients often have more difficulty swallowing liquids than solids in the early stages. Facial weakness, hypophonic speech, fasciculations and reduced jaw jerk reflex (LMN sign) are all features. Eye movements are typically spared.

Achalasia presents with difficulty swallowing both liquids and solids as there is loss of normal peristalsis and failure of the lower sphincter to relax in response to swallowing. This condition would not present with fasciculation of the tongue.

Oesophageal carcinoma can present with difficulty swallowing, however, patients report difficulty with solids before liquids and constitutional symptoms such as weight loss are usually present.

Myasthenia gravis is the second most likely differential, as facial weakness, hypophonic speech, and difficulty swallowing can be present. Ocular signs are usually present however and therefore MND is more likely.

Lambert-Eaton myasthenic syndrome usually presents with proximal muscle weakness, autonomic features (such as dry mouth, constipation), and areflexia. It is also associated with underlying malignancy.

Question:

A 19-year-old student presents with a 1 cm golden, crusted lesion on the border of her left lower lip.

Topical hydrogen peroxide did not help for a similar episode previously.

What is the most suitable management?

A.Oral co-amoxiclav

B.Oral penicillin

C.Oral flucloxacillin

D.Oral flucloxacillin + penicillin

E.Topical fusidic acid

Answer:Topical fusidic acid

Explanation:

Impetigo - topical fusidic acid if hydrogen peroxide not suitable

Important for meLess important

Question:

A newborn infant is noted to have a posterior displacement of the tongue and a cleft palate. What is the most likely diagnosis?

A.Pierre-Robin syndrome

B.Patau syndrome

C.Edward's syndrome

D.Noonan syndrome

E.William's syndrome

Answer:Pierre-Robin syndrome

Explanation:

A baby is noted to have micrognathia and a cleft palate. He is placed prone due to upper airway obstruction. There is no family history of similar problems - Pierre-Robin syndrome

Important for meLess important

Question:

A 69-year-old retired painter presents to his GP with an increasingly debilitating tremor in his hands. He first noticed the tremor a year ago, but it has worsened over the last couple of months and he is now struggling to keep his hands steady when drawing or painting. Furthermore, he reports changes in his voice with the appearance of a mild vibrato.

On neurological examination, you notice a high-frequency tremor, most pronounced on the left, when the patient holds up his arms in front of him. The tremor is absent when the patient relaxes his arms and hands and there is no evidence of any ataxia or hypotonia.

What is the most likely explanation for this patient’s symptoms?

A.Cerebellar disease

B.Essential tremor

C.Parkinson's disease

D.Orthostatic tremor

E.Multiple system atrophy

Answer:Essential tremor

Explanation:

While an essential tremor is classically associated with a tremor present with sustained muscle tone (i.e. postural tremor) in the hands, it can also affect the vocal cords

Important for meLess important

An essential tremor is classically associated with a tremor present with sustained muscle tone (i.e. kinetic tremor). While it typically involves the hands or fingers, it can also affect the vocal cords.

Cerebellar disease - unlikely, due to absence of cerebellar signs

Parkinson's disease - unlikely due to absence of resting tremor

Orthostatic tremor - is rare and affects the legs

Multiple system atrophy - unlikely due to absence of Parkinsonism or autonomic symptoms

Reference: Wilkinson & Longmore, Oxford Handbook of Clinical Medicine (10th Ed.), p. 468.

Question:

A 35-year-old man, normally fit and well, presents to the emergency department with a 1 day history of chest pain. He describes it as left sided chest pain radiating into his neck, and is associated with shortness of breath. The chest pain worsens on lying down flat, and eases on sitting up and leaning forwards. He also describes feeling feverish and having a cough recently.

Based on the likely diagnosis, what would be the most appropriate treatment option for this patient?

A.Co-amoxiclav

B.Glyceryl trinitrate

C.Ibuprofen

D.Low-dose corticosteroids

E.Pericardiocentesis

Answer:Ibuprofen

Explanation:

Chest pain due to pericarditis is often relieved by sitting/leaning forward

Important for meLess important

Pericarditis is swelling of the pericardium, and usually presents with chest pain and temperature following a viral illness. The chest pain associated with pericarditis typically is relived on sitting up/leaning forward, making pericarditis the most likely diagnosis in this case. Treatment of pericarditis usually starts with anti-inflammatories such as ibuprofen, making this the correct answer.

Usually the aetiology of pericarditis is viral or idiopathic, and therefore first line treatment is non-steroidal anti-inflammatories (NSAIDs). Antibiotics, such as co-amoxiclav, are not used first line for pericarditis, making this an incorrect answer.

Glyceryl trinitrate is usually used in the initial management of acute coronary syndrome. Acute coronary syndrome presents typically with crushing left sided chest pain, radiating down the arm and neck, and is typically associated with shortness of breath and nausea. A history of cardiovascular risk factors may also be present. In this case, 35-year-old man has chest pain which sounds more typical of pericarditis (due to the positional nature of the pain and temperature), making acute coronary syndrome less likely to be the answer. This makes glyceryl trinitrate an incorrect answer.

Treatment with low dose corticosteroids are indicated for the treatment of pericarditis if ibuprofen and colchicine are contra-indicated, and if infection has been ruled out. As there are no contra-indications to NSAIDs or colchicine in this case, low dose corticosteroids are not needed.

Acute cardiac tamponade can occur as a complication of acute pericarditis, and is usually more common with underlying malignancy, TB or purulent pericarditis. This is unlikely to be the case for this patient. Therefore, pericardiocentesis is not indicated in this case.

Question:

A 41-year-old man presents with a one-month history of tingling sensation in his fingers, toes and around the mouth. When the symptom first started, it was only affecting his fingers. It has since spread and gradually got worse. He had the same symptom a few years ago and was found to have a low calcium level. There is no reported muscle weakness, tremor or other neurological symptoms.

He is currently taking esomeprazole for reflux symptoms. His recent blood test showed the following:

Calcium 2.2 mmol/L (2.1-2.6)

What electrolyte abnormality would explain this patient's presenting symptoms?

A.Hyperkalaemia

B.Hypermagnesaemia

C.Hypernatraemia

D.Hypomagnesaemia

E.Hypophosphatemia

Answer:Hypomagnesaemia

Explanation:

Hypomagnesaemia can present with similar symptoms to hypocalcaemia

Important for meLess important

The correct answer is hypomagnesaemia. Features of hypomagnesaemia are similar to those of hypocalcemia which includes paresthesia, tetany, seizures and arrhythmias. It can be caused by proton pump inhibitors such as lansoprazole and esomeprazole.

Hyperkalemia's symptom are often non-specific. Symptoms can include breathing difficulty, weakness, fatigue, palpitations or chest pain. It does not cause paresthesia. Therefore this answer is incorrect.

Hypermagnesaemia's symptom includes weakness, confusion, nausea and vomiting and shortness of breath. It does not cause paresthesia. Therefore this answer is incorrect.

Hypernatremia would not cause paresthesia and is, therefore, an incorrect answer. Presentation of hypernatraemia includes lethargy, weakness, confusion, irritability and seizures.

Hypophosphatemia's symptom includes muscle weakness, bone pain, confusion and seizures. It does not cause paresthesia. Therefore this answer is incorrect.

Question:

A 20-year-old man presents to the emergency department after a suicide attempt. This is his fifth suicide attempt in the last two years. He was found by his ex-girlfriend who broke up with him the day before. She was unable to cope with the intensity of their relationship, his severe mood swings and extremely negative emotions. He has no contact with his family.

His appearance is dishevelled, and on questioning, he says he feels worthless and believes everyone will eventually abandon him.

What is the most likely diagnosis?

A.Bipolar disorder

B.Emotionally unstable personality disorder (EUPD)

C.Histrionic personality disorder

D.Major depressive disorder

E.Schizoid personality disorder

Answer:Emotionally unstable personality disorder (EUPD)

Explanation:

Borderline (emotionally unstable) personality disorder is associated with a history of recurrent self-harm and intense interpersonal relationships that alternate between idealization and devaluation

Important for meLess important

Emotionally unstable personality disorder is correct. This disorder is characterised by a tendency to act impulsively due to disturbances of self-image and a fear of abandonment. These patients tend to have severe mood swings and intense negative emotions, particularly explosive outbursts of anger, though they feel chronically empty. They usually have intense relationships with others and may have a history of threatened or actual self-harm or suicide.

Bipolar disorder is incorrect. Patients with bipolar disorder may present with self-harm and capricious moods, however, there is no evidence that this patient has had any episodes of mania in the past, which is key to a diagnosis of bipolar disorder.

Histrionic personality disorder is incorrect. This tends to present with overly-theatrical and exaggerated emotions, continually seeking to be the centre of attention. It is also associated with inappropriate seductive behaviour and a preoccupation with their physical appearance, which is at odds with this patient's dishevelled looks. There is no evidence that this patient meets any of these criteria.

Major depressive disorder is incorrect. This presents with feelings of worthlessness, lack of care for physical appearance, and self-harm or suicide attempts which do fit the clinical picture. However, you would not expect severe mood swings, intense interpersonal relationships or significant abandonment issues.

Schizoid personality disorder is incorrect. This tends to present with a cold affect and very little display of emotion, which is not the case for this patient. They tend to have no desire or interest in relationships with others, rather than the intense interpersonal relationships seen in EUPD.

Question:

A 22-year-old man is involved in a road traffic accident. He is found to have a pelvic fracture. While on the ward the nursing staff report that he is complaining of lower abdominal pain. On examination you find a distended tender bladder. What is the most likely diagnosis?

A.Bladder rupture

B.Ureter injury

C.Urethral injury

D.Clot retention

E.Prostate rupture

Answer:Urethral injury

Explanation:

Pelvic fractures may cause laceration of the urethra. Urinary retention, blood at the urethral meatus and a high riding prostate on digital rectal examination are the typical features.

Question:

An 18-year-old man presents worried about blood-borne viruses. He has just returned from backpacking abroad. On the last day, he and his friends had tattoos done to remember their trip, but he is now panicking about whether the equipment was sterile. He has been reading on-line about the risks and requests testing for human immunodeficiency virus (HIV) and hepatitis B and C. You counsel him that tests can be taken straight away if he wishes but that they will need to be repeated as any infection caught from this particular exposure would be too early to show up on tests yet.

When should he come back for a blood test for HIV?

A.1 week

B.4 weeks

C.6 months

D.12 months

E.Only if symptomatic

Answer:4 weeks

Explanation:

Testing for HIV in asymptomatic patients should be done at 4 weeks after possible exposure

Important for meLess important

4 weeks. Correct answer, HIV tests (for antibodies and p24 antigen) should be taken 4 weeks after possible exposure, by which point most infections can be detected. You might also consider an HIV test at presentation in case of an infection contracted at an earlier date (although at 1 week may be too early for detection), and you should offer to repeat the test at 12 weeks to confirm no infection.

Only if symptomatic. Incorrect, HIV infection is commonly asymptomatic.

Question:

Doreen is an 80-year-old woman who presented to her GP with bilateral shoulder and hip pain and stiffness. She was diagnosed with polymyalgia rheumatica and started on 15mg prednisolone once daily. She saw her GP one month after starting steroids and reported no improvement in her symptoms.

What is the correct course of action?

A.Add immunosuppressant such as azathioprine

B.Double steroid dose

C.Refer for physiotherapy

D.Refer to a specialist

E.Start an NSAID

Answer:Refer to a specialist

Explanation:

Patients with polymyalgia rheumatica typically respond dramatically to steroids, failure to do so should prompt consideration of an alternative diagnosis

Important for meLess important

Most patients should respond dramatically to steroids. If there is little response to prednisolone, the patient should be referred to an appropriate specialist for review of the diagnosis.

Where there is a small a response (but less than 70% reported improvement), CKS advises that the dose of prednisolone could be increased to 20mg. Doubling the dose is not advised.

Physiotherapy may be helpful but the underlying diagnosis is currently unknown.

Immunosuppressants would not be initiated by the GP.

NSAIDs may be helpful for managing pain but will not assist with arriving at the correct diagnosis.

Question:

A 22-year-old woman attends her GP with recurrent, smelly discharge from her right ear with a reduced hearing on the affected side. Episodes were usually every few months but she is noticing the discharge on most days now. As a child, she swam frequently and had grommet insertion for glue ear which fell out around the age of 9. She has no other past medical history and her only medication is the combined oral contraceptive pill.

Hearing tests are performed which show:

Rinne's test (right side) bone conduction > air conduction

Rinne's test (left side) air conduction > bone conduction

Weber's test lateralisation to right

What diagnosis should be suspected?

A.Acoustic neuroma

B.Cholesteatoma

C.Otitis externa

D.Otosclerosis

E.Tympanosclerosis

Answer:Cholesteatoma

Explanation:

Conductive hearing loss

Rinne result: Bone conduction > air conduction in affected ear, Air conduction > bone conduction in unaffected ear

Weber result: Lateralises to affected ear

Important for meLess important

This patient is presenting with a right-sided conductive hearing loss as she has Rinne's test showing bone conduction > air conduction in the affected ear and Weber's test that lateralises to the right (affected ear). Cholesteatoma is an example of a conductive hearing loss that is also associated with chronic, smelly ear discharge and recurrent glue ear. The vignette depicts a patient who is experiencing both recurrent ear discharge and has a history of glue ear which makes this the most likely diagnosis. Cholesteatoma occurs due to squamous epithelium forming in small pockets on the tympanic membrane which becomes cyst-like as it produces keratin and sloughs over time. There will be middle ear erosion which will create an environment for anaerobic bacterial growth to occur.

Acoustic neuroma causes sensorineural hearing loss. It is associated with dizziness and typically causes unilateral hearing loss. Sensorineural hearing loss is seen as air conduction >bone conduction in both ears and Weber test lateralising to the unaffected ear. Over time, patients with acoustic neuroma develop neurological symptoms as the tumour grows. Neurological symptoms can be predicted by the affected cranial nerves:

Cranial nerve VIII: hearing loss, vertigo, tinnitus.

Cranial nerve V: absent corneal reflex.

Cranial nerve VII: facial palsy.

Otitis externa is an acute infection of the outer ear associated with ear pain or itching and occasionally discharge from the affected ear. It commonly affects swimmers. It can cause a conductive hearing loss as shown above. As the patient has a chronic history, this answer is less likely. Furthermore, her lack of ear pain should lead to consideration of other diagnoses.

Otosclerosis presents with progressive conductive hearing loss and tinnitus. It is an autosomal dominant trait so patients are typically aged 20-40 years and will have a strong family history of early-onset hearing loss. It occurs as the normal bone in the middle ear is replaced by vascular spongy bone causing conductive hearing loss as the stapes becomes adherent to the oval window. As it does not typically present with smelly ear discharge, the student should consider alternative options first.

Tympanosclerosis is caused by the calcification of collagenous scar tissue on the inner tympanic membrane and middle ear following otitis media or trauma to the tympanic membrane. Patients may be asymptomatic or develop unilateral conductive hearing loss. There may be a chalky patch on the tympanic membrane seen on otoscopy or there may be total middle ear destruction. This is not the most likely diagnosis as the patient is complaining of chronic otorrhoea which differs from the typical presentation of tympanosclerosis.

Question:

A 35 year-old lady attends the GP practice complaining of heavy painless periods which are interrupting with her lifestyle and causing her distress at work. She is currently in the process of trying for a family. The most suitable option is:

A.The combined oral contraceptive pill

B.Intrauterine system (IUS)

C.Tranexamic acid

D.Endometrial ablation

E.Mefenamic acid

Answer:Tranexamic acid

Explanation:

Tranexamic acid is the first-line non-hormonal treatment for menorrhagia

Important for meLess important

This question is testing the candidate's ability to find the most suitable treatment for menorrhagia specific to this patient. This patient is in the process of trying to get pregnant thus ruling out the contraceptive pill and the intrauterine system (IUS) as treatment options (note: the IUS is first line for those not trying to get pregnant). Endometrial ablation involves removing the lining of the womb and is not recommended for those who wish to have children in the future as there is a high chance of miscarriage, it would also be an inappropriate first line option. As her periods are painless, there is no need for her to take mefenamic acid, an NSAID, which is also not recommended in pregnancy. The most appropriate answer is therefore tranexamic acid, a plasminogen activator inhibitor that acts as an anti-fibrinolytic to prevent heavy menstrual bleeding.

See: Nice guidelines: Heavy menstrual bleeding

Question:

A 4-hour-old baby boy is reviewed following delivery at 35 weeks. The pregnancy and delivery were otherwise unremarkable. The mother reports no concerns; breastfeeding has been successful so far.

On examination, the neonate looks well at rest. A blood glucose measurement is taken, with the result coming out as 2.2 mmol/L.

What is the most appropriate management at this stage?

A.Administer intramuscular glucagon

B.Admit to the neonatal unit for observation

C.Encourage continued breastfeeding

D.Switch to bottle feeding

E.Admit to the neonatal unit for infusion of 10% dextrose

Answer:Encourage continued breastfeeding

Explanation:

Neonatal hypoglycaemia: if asymptomatic then encourage normal feeds and monitor glucose

Important for meLess important

The correct answer is to encourage continued breastfeeding. Hypoglycaemia is not uncommon in neonates, especially in preterm babies. The key is here that the baby is well and asymptomatic. In this case, the correct management is to simply encourage the existing method of feeding (breastfeeding here) and monitor glucose.

Administering glucagon would be inappropriate - this forms part of the guidelines of neonatal hypoglycaemia management if symptomatic or severely low.

Admitting to the neonatal unit for observation is not needed here - it would be appropriate if the neonate was symptomatic or the blood glucose was very low.

Switching to bottle feeding is not correct. The normal method of feeding should be encouraged - in this scenario, we are told that the mother breastfeeds.

Admitting to the neonatal unit for an infusion of 10% dextrose is incorrect - this would be appropriate as part of the management of a symptomatic baby, or with very low glucose.

Question:

A 70-year-old man was found unconscious in his bathroom this morning by his carers who had been increasingly concerned over the past few days due to new-onset worsening confusion and unsteadiness on his feet. He has a past medical history of poorly controlled hypertension, type 2 diabetes mellitus, atrial fibrillation, and severe coronary artery disease. On arrival in resus, the ambulance crew report that while he was unable to mobilise or speak to them, he was able to follow eye movement commands. He is sent for an urgent CT head.

Considering his presentation, what is the most likely finding on CT?

A.Anterior cerebral artery infarct

B.Basilar artery infarct

C.Internal capsule infarct

D.Posterior cerebral artery infarct

E.Posterior inferior cerebellar artery infarct

Answer:Basilar artery infarct

Explanation:

Locked-in syndrome - basilar artery

Important for meLess important

This patient is presenting with locked-in syndrome which can occur in a basilar artery infarct. This blood vessel supplies the cerebellum, thalamus, occipital lobe, and brainstem. These strokes are rare and often devastating. There are 3 main presentations of patients experiencing a basilar artery infarct:

An acute decreased GCS and advanced motor symptoms.

Insidious, gradual deterioration in GCS and motor symptoms with a subsequent sudden advanced decrease in GCS and motor symptoms.

A 'herald hemiparesis' with associated headache and vision changes prior to the onset of permanent symptoms of motor loss.

An anterior cerebral artery infarct presents with lower limb contralateral hemiparesis typically with occasional urinary incontinence. If there is an extensive anterior cerebral artery involvement, they may have cognitive impairment (including disinhibition and personality changes) due to the involvement of the prefrontal cortex. Patients do not typically have reduced GCS or diffuse tetraplegia.

Internal capsule infarcts can present with a purely motor stroke affecting one limb only. These are not associated with significantly reduced GCS and carry a less significant level of morbidity and mortality than a basilar artery infarct.

A posterior cerebral artery infarct presents with contralateral hemianopia and macular sparing (due to collateral vascular supply to the region). These are not associated with motor loss or reduced GCS.

A posterior inferior cerebellar artery infarct presents with loss of temperature and pain sensation to the ipsilateral face and contralateral trunk and limbs. There may also be slurring of the speech and ataxic gait. Patients do not usually have reduced GCS or tetraplegia.

Question:

An 11-year-old boy presents to his general practitioner with unilateral hip and knee pain of 2 weeks after being involved in a tackle whilst playing football. He has a marked limp that has recently worsened. On examination, there is the loss of internal rotation of the leg in flexion. He has no fever and his observations are stable.

What is the most likely diagnosis?

A.Acute transient synovitis

B.Development dysplasia of the hip

C.Perthes' disease

D.Septic arthritis

E.Slipped capital femoral epiphysis

Answer:Slipped capital femoral epiphysis

Explanation:

There is often the loss of internal rotation of the leg in flexion in slipped capital femoral epiphysis

Important for meLess important

Acute transient synovitis is incorrect as it usually resolves within 1-2 weeks and can follow a recent upper respiratory infection.

Development dysplasia of the hip is usually diagnosed in younger children. It can present at birth and is screened for using the Barlow and Ortolani tests.

Perthes' disease is usually present in boys of 4-8 years. This is not an unreasonable answer. The loss of internal rotation of the leg in flexion makes slipped capital femoral epiphysis the more likely diagnosis.

Septic arthritis would present with a fever and patients may not be able to weight bear.

Question:

An 88-year-old man is reviewed on ward round.

He has a diagnosis of lung cancer with bony metastases which are causing him significant pain. His lung cancer is being managed palliatively.

Other than his pain he remains stable, his renal function is normal and he is eating and drinking well.

Currently, he takes paracetamol 1g four times daily and modified-release morphine 20mg 12-hourly, with 5mg immediate-release morphine for breakthrough pain. He has been using the immediate-release morphine 4 times daily, but this does not control his pain.

What alteration to his current analgesia is most appropriate?

A.Add tramadol 100mg four times daily

B.Increase frequency of immediate-release morphine to 2 hourly

C.Increase modified-release morphine to 30mg 12 hourly

D.Switch to continuous subcutaneous infusion of morphine 30mg/24 hours

E.Switch to continuous subcutaneous infusion of morphine 60mg/24 hours

Answer:Increase modified-release morphine to 30mg 12 hourly

Explanation:

In palliative patients increase morphine doses by 30-50% if pain not controlled

Important for meLess important

'Increase modified-release morphine to 30mg 12 hourly' is correct. The patient is using 40mg modified-release morphine for a 24-hour period. The dose increase should be 1/3 to 1/2 of this dose which would give an increase of 20mg morphine (using an increase of 1/2). Therefore his new dose of modified-release morphine should be 60mg over 24 hours (as 30mg of modified-release morphine BD).

An alternative way to calculate the dose increase would be to add in the total amount of breakthrough immediate-release morphine the patient has used in the preceding 24 hours. In this case, the patient has used 20mg of immediate-release morphine daily. This could be added to the total daily dose of modified-release morphine, giving 60mg as his new dose over 24 hours (as 30mg of modified-release morphine BD).

'Add tramadol 100mg four times daily' is incorrect as the patient is already on a strong opioid.

'Increase frequency of immediate-release morphine to 2 hourly' is incorrect. Whilst immediate-release morphine can be given up to hourly in patients approaching the end of life, NICE recommends that using immediate-release morphine twice daily or more should trigger a review of their analgesic regimen to achieve better long-term pain control.

'Switch to continuous subcutaneous infusion of morphine 30mg/24 hours' is incorrect. This patient can swallow tablets and there is room for up-titration of his oral medication and so there is no indication to switch to continuous subcutaneous infusion at this point.

'Switch to continuous subcutaneous infusion of morphine 60mg/24 hours' is incorrect. This patient can swallow tablets and so there is no indication to switch to continuous subcutaneous infusion. Also, the dose here is incorrect, as the equivalent subcutaneous dose of morphine is approximately half the oral dose.

Question:

A 59-year-old patient presents with acute central chest pain that she first noticed 8 hours ago. She explains that she was recently discharged following a non-ST-elevation myocardial infarction that occurred 6 days previously. Following a thorough history and examination, you suspect re-infarction and wish to investigate further.

What biomarkers would be most useful in confirming the diagnosis?

A.CK-MB

B.CRP

C.LDH

D.Myoglobin

E.Troponin T

Answer:CK-MB

Explanation:

Creatine kinase (CK-MB) remains elevated for 3 to 4 days following infarction. Troponin remains elevated for 10 days. This makes CK-MB useful for detecting re-infarction in the window of 4 to 10 days after the initial insult

Important for meLess important

Creatine kinase myocardial band (CK-MB) is the correct answer. It is more specific for cardiac muscle ischaemia than creatine kinase and returns to normal levels quicker than troponin, making it an effective measure of re-infarction in patients 4-10 days following their initial infarction.

CRP is not a specific cardiac biomarker and would not help confirm a diagnosis of re-infarction in this patient. CRP is not specific to myocardial injury as it can be raised by several causes including infection, inflammation, malignancy, and ischaemia.

LDH was historically used to assess and diagnose myocardial infarction. However, it is less specific than other biomarkers and takes upwards of 24 hours before levels begin to rise.

Myoglobin is not the correct answer. While it is the first biomarker to rise after infarction, it is less specific for myocardial infarction than CK-MB. As 8 hours have passed since the onset of symptoms, both biomarkers are likely to be raised.

Troponin T is incorrect. This biomarker is highly sensitive and specific for myocardial injury. However, it remains elevated for up to 10 days post-infarction, meaning that it is less effective in diagnosing re-infarction during this period.

Question:

A 62-year-old man visits his GP with some enlarging of his chest. He is quite embarrassed and thinks that he is developing breast tissue. You examine him and find nothing sinister other than bilateral gynaecomastia. His medical history includes hypertension, high cholesterol, type 2 diabetes and benign prostatic hyperplasia

Which of the following medication is most likely to cause this condition?

A.Metformin

B.Gliclazide

C.Ramipril

D.Finasteride

E.Simvastatin

Answer:Finasteride

Explanation:

There are a number of causes of gynaecomastia in males and it is important to rule out sinister ones such as kidney failure, endocrine disturbances, liver failure or malignancy.

Another key cause is medication-related, in this case, the finasteride taken by this patient can cause gynaecomastia.

Finasteride works by blocking 5-alpha-reductase thus reducing the production of dihydrotestosterone and therefore shrinking the prostate. However, side effects can include gynaecomastia and sexual dysfunction.

Question:

A 44-year-old woman presents to the emergency department with dyspnoea. She has been feeling intermittently dizzy and short-of-breath for the past 2 weeks. On examination her pulse is 180/min, blood pressure 100/66 mmHg, oxygen saturations 98% on room air. Her chest is clear and she appears well perfused. An ECG is obtained:

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What is the most appropriate treatment? ,

A.Intravenous amiodarone

B.Intravenous adenosine

C.Intravenous magnesium

D.Intravenous labetalol

E.Unsynchronised DC shock

Answer:Intravenous magnesium

Explanation:

IV magnesium sulfate is used to treat torsades de pointes

Important for meLess important

The ECG shows an irregular wide-complex tachycardia, a form of polymorphic ventricular tachycardia or more specifically torsades de pointes. This patient had an underlying long QT interval secondary to a combination of medications. The acute treatment for this is intravenous magnesium.

Precipitating medications should, of course, be reviewed and electrolyte abnormalities corrected.

If the patient was in shock or periarrest then the ALS tachycardia should be followed, i.e. SYNCHRONISED DC shocks. There are, however, no 'adverse' signs in this patient.

The ALS periarrest guidelines state the following:

Treat torsade de pointes VT immediately by stopping all drugs known to prolong the QT interval. Do not give amiodarone for definite torsade de pointes. Correct electrolyte abnormalities, especially hypokalaemia. Give magnesium sulfate 2 g IV over 10 min (= 8 mmol, 4 mL of 50% magnesium sulfate).

Question:

A 55-year-old woman has a 1-month history of fatigue, aches, constipation, and nausea. She has also had increased thirst and waking at night to pass urine and has left the house infrequently due to a low mood.

Investigations are performed:

Hb 140 g/L (115 - 160)

WBC 5.9 \* 109/L (4.0 - 11.0)

Calcium 2.8 mmol/L (2.1-2.6)

PTH 75 pg/mL (10 - 55)

ALP 130 µmol/L (30 - 100)

Phosphate 0.4 mmol/L (0.8-1.4)

Urea 5.3 mmol/L (2.0 - 7.0)

Creatinine 68 µmol/L (55 - 120)

25-hydroxycholecalciferol 48 nmol/L (>50)

eGFR 62 ml/min/1.73 m2

What is the most likely underlying cause of her presentation?

A.Chronic kidney disease

B.Parathyroid adenoma

C.Parathyroid carcinoma

D.Parathyroid hyperplasia

E.Vitamin D deficiency

Answer:Parathyroid adenoma

Explanation:

Raised serum calcium, low serum phosphate, raised ALP and raised PTH - primary hyperparathyroidism

Important for meLess important

Parathyroid adenoma is correct. This patient has signs and symptoms of hypercalcaemia which can be remembered as bones (aches and bone pain), abdominal groans (nausea and constipation), and psychiatric moans (low mood). She also has fatigue, polyuria, and polydipsia, which are also seen in hypercalcaemia.

Her blood tests confirm the presence of hypercalcaemia, but also show a raised parathyroid hormone (PTH), raised ALP, low phosphate, and slightly low 25-hydroxycholecalciferol. The raised calcium, raised ALP, and low phosphate suggests that the underlying cause is primary hyperparathyroidism whose most common cause is a solitary parathyroid adenoma (in 80% of cases). The reason we see these results is that increased PTH stimulates bone resorption which elevates serum calcium and increases ALP (due to increased bone turnover). At the same time, PTH increases the excretion of phosphate from the proximal tubules of the kidneys, giving low serum phosphate. Since this patient has not left the house much over the last month, it is not unexpected that their vitamin D level is slightly low, and it is unlikely that this slightly reduced amount and timeframe would lead to the development of secondary hyperparathyroidism.

Parathyroid carcinoma is incorrect. Although this can also cause primary hyperparathyroidism, it is the rarest underlying cause of the ones listed, making up around 1% of cases.

Parathyroid hyperplasia is incorrect. Although this can also cause primary hyperparathyroidism, it is much less common than a solitary parathyroid adenoma and makes up around 15% of cases.

Chronic kidney disease is incorrect. An eGFR less than 90 can be normal as long as it is above 60 and there are no deranged U&Es. This patient's eGFR is 62 and their urea and creatinine are normal, indicating that they do not have chronic kidney disease (CKD). CKD can lead to secondary hyperparathyroidism which has different blood results. Because the kidneys are needed for the activation of vitamin D, which is necessary for the intestinal absorption of calcium, in CKD, there is less vitamin D activation and so, serum calcium would be low. Due to kidney dysfunction, there is insufficient phosphate excretion, increasing serum phosphate levels. The increased phosphate levels also lead to calcium being deposited in the insoluble calcium phosphate salt, lowering calcium levels even further. The features of hypercalcaemia she is experiencing would not be seen. In summary, hyperparathyroidism secondary to CKD would have low calcium and raised phosphate, not high calcium and low phosphate.

Vitamin D deficiency is incorrect. This patient's vitamin D levels are only slightly low, which is likely to be due to her leaving the house infrequently. This timeframe and a slight reduction in vitamin D are unlikely to have caused secondary hyperparathyroidism. As well as this, if low vitamin D levels were to be the cause of her hyperparathyroidism, the calcium would be low or normal due to reduced intestinal calcium absorption, and the features of hypercalcaemia she is experiencing would not be seen.

Question:

A 39-year-old newly diagnosed HIV positive gentleman presents with a dry cough, fever and pleuritic chest pain. Based on findings in the history, examination and investigations, he is treated empirically for presumed Pneumocystis jirovecii pneumonia. Which of the following findings would you expect to find on further investigation?

A.Upper lobe consolidation on chest X-ray

B.CD4 count under 200 cells/mm³

C.Presence of cold agglutinins - causing cold autoimmune haemolytic anaemia

D.Organisms visualised on microscopy using the India-ink stain

E.Recent exposure to soil or bat droppings

Answer:CD4 count under 200 cells/mm³

Explanation:

Pneumocystis jirovecii pneumonia usually occurs at CD4 counts under 200 cells/mm³

Important for meLess important

Pneumocystis jirovecii pneumonia usually occurs at CD4 counts under 200 cells/mm³. Regarding the other options - upper lobe consolidation is commonly associated with TB, although is also seen in other bacterial cases of pneumonia; and mycoplasma infection is classically associated with the presence of cold agglutinins - causing cold autoimmune haemolytic anaemia (although this is rare); cryptococcus organisms are visualised by India-ink staining; soil/bird/bat dropping exposure is usually linked to histoplasmosis.

Question:

A 55-year-old man presents to his GP with visual disturbance.

On examination, the patient is noted to have visual field abnormalities; he is unable to perceive stimuli in the superior temporal field of his left eye and the superior nasal field of his right eye.

The GP requests an MRI urgently.

Where is a lesion most likely to be found?

A.Left parietal lobe

B.Left temporal lobe

C.Optic chiasm

D.Right parietal lobe

E.Right temporal lobe

Answer:Right temporal lobe

Explanation:

Superior homonymous quadrantanopias are caused by lesions of the inferior optic radiations in the temporal lobe

Important for meLess important

Right temporal lobe is correct. A lesion here would produce a left-sided homonymous superior quadrantanopia as described in the question stem.

Left parietal lobe is incorrect. This would produce a right-sided homonymous inferior quadrantanopia.

Left temporal lobe is incorrect. A lesion here would cause right-sided homonymous superior quadrantanopia.

Optic chiasm is incorrect. This would cause bitemporal hemianopia.

Right parietal lobe is incorrect. A lesion here would result in a left-sided homonymous inferior quadrantanopia.

Question:

A 74-year-old woman presents to the emergency department with sudden-onset weakness in her left leg affecting her ability to walk. This started when she woke up this morning.

On examination MRC power was graded as 5/5 in the right limbs, 5/5 in the left upper limb and 3/5 in the left lower limb. Fine touch was also found to be reduced in her left leg compared to the right. Her cranial nerve examination shows no abnormal findings.

A CT scan of her head is ordered.

Based on her presenting symptoms, which artery is most likely to be affected?

A.Anterior cerebral artery

B.Middle cerebral artery

C.Posterior cerebral artery

D.Posterior inferior cerebellar artery

E.Vertebral artery

Answer:Anterior cerebral artery

Explanation:

Anterior cerebral artery stroke causes leg weakness but not face weakness or speech impairment

Important for meLess important

Anterior cerebral artery is correct. This patient has presented with sudden-onset neurological deficits (weakness and urinary incontinence) which are suggestive of a stroke. When the anterior cerebral artery (ACA) is affected, this leads to symptoms affecting the lower limb more than the upper limb and does not cause facial weakness or speech impairment.

Middle cerebral artery is incorrect. An infarct here would present with the upper limb being affected more than the lower limb and may have associated aphasia, which is not seen in an ACA infarct.

Posterior cerebral artery is incorrect. This presents with homonymous hemianopia with macular sparing and visual agnosia. The patient's cranial examination was normal, therefore this artery was not affected.

Posterior inferior cerebellar artery is incorrect. If this artery is affected, it leads to a lateral medullary syndrome which is characterised by ipsilateral facial pain and temperature loss and contralateral limb/torso pain with temperature loss as the spinothalamic tract is affected. This patient does not have these symptoms.

Vertebral artery is incorrect. This leads to features seen in lateral medullary syndrome (mentioned above), of which the patient does not have the signs and symptoms.

Question:

A 67-year-old male presents with severe lower back pain that radiates down one of his legs. There is no history of injury though he does a manual job. On examination, he has reduced perianal sensation and reduced anal tone.

With regards to this patient's diagnosis, which of the following would represent a late sign and indicate potentially irreversible damage?

Positive sciatic stretch test

2%

Reduced perianal sensation

6%

Tingling of his right leg

1%

Urinary incontinence

70%

Reduced anal tone

21%

Cauda equina syndrome classically presents with lower back pain, sciatica, reduced perianal sensation. Late signs include urinary incontinence

Important for meLess important

Urinary incontinence is a late sign of cauda equina and is associated with poor outcomes - ie irreversible damage.

A positive sciatic stretch test just tells you that the patient has some irritation or compression of the sciatic nerve. It does not indicate spinal cord compression.

Reduced perianal sensation is certainly a red flag but usually appears earlier than urinary incontinence.

Tingling of one leg can be caused by sciatic nerve irritation but isn't a specific sign of cauda equina, especially if unilateral.

Anal tone should be assessed but studies show it has low sensitivity and specificity for cauda equina syndrome.

Question:

A 50-year-old man visits his opticians due to a 3-month deterioration in his vision. He also mentions that he has noticed a glare around objects. The optician urgently refers the patient to the ophthalmology clinic, where a thorough assessment is conducted.

On assessment, he has reduced central visual acuity. Amsler grid testing reveals line distortion.

Given the likely diagnosis, what changes may be visible on this patient’s retina?

A.Arteriovenous nicking

B.Cotton wool spots

C.New blood vessels

D.Pale retina

E.Papilloedema

Answer:New blood vessels

Explanation:

Wet macular degeneration is characterised by choroidal neovascularisation

Important for meLess important

The correct answer is new blood vessels. This patient, with a 3-month history of deteriorating central vision, glares around objects, and metamorphopsia on an Amsler grid likely has wet age-related macular degeneration (AMD). Patients suffering from wet AMD have choroidal neovascularisation, which is why this condition can also be referred to as neovascular AMD. This is diagnosed by new blood vessel growth visible on fundoscopy.

Arteriovenous nicking is incorrect. This is a finding most commonly associated with hypertensive retinopathy. This patient has wet AMD.

Cotton wool spots is incorrect. This is a finding associated with conditions such as hypertensive and diabetic retinopathy, amongst others. Wet AMD is not a condition associated with cotton wool spots.

Pale retina is incorrect. This is a finding associated with central retinal artery occlusion. A cherry red spot is often also seen.

Papilloedema is incorrect. This refers to swelling of the optic disc due to a raised intracranial pressure. This patient does not have any symptoms suggestive of raised intracranial pressure.

Question:

A 28-year-old transgender male (assigned female at birth) patient attends clinic, asking for advice regarding contraception. He is currently under the care of the gender identity clinic and taking testosterone therapy. He wishes to undergo surgery at some point in the future, but has not yet done so. He is otherwise fit and well.

Upon further questioning, you learn that he engages in unprotected vaginal intercourse with a regular male partner. Given that he still has a uterus, he is concerned regarding pregnancy as he does not wish to become pregnant at this time.

What should you advise him?

A.Condoms are the only safe option

B.Testosterone therapy is protective against pregnancy

C.The combined oral contraceptive pill is a suitable option

D.The intrauterine copper device is a safe option

E.The vaginal ring is a safe option

Answer:The intrauterine copper device is a safe option

Explanation:

For transgender males, testosterone therapy does not provide protection against pregnancy and if the patient becomes pregnant, testosterone therapy is contraindicated as can have teratogenic effects

Important for meLess important

Out of the above statements, the only correct one is that the intrauterine copper device is safe to use. As it is copper, non-hormonal, it does will not interact with the patient's testosterone regime. It may, however, worsen menstrual bleeding.

Condoms are a suitable option, as they are again non-hormonal, but not 'the only safe option'.

Testosterone therapy does not provide protection against pregnancy. In fact, if the patient were to become pregnant, testosterone may lead to teratogenic effects.

The combined oral contraceptive pill is contraindicated as it contains oestrogen - this can antagonise the effect of the testosterone therapy. The vaginal ring is also contraindicated for the same reason - it is a combined formulation, containing oestrogen too. The progesterone-only pill, however, would be suitable, as would progesterone-only methods such as injections and the intrauterine system.

Question:

A 17-year-old sixth-form student attends his GP due to problems with his skin which are affecting his confidence.

On examination, you note several open and closed comedones mostly across his cheeks and chin. He also complains of painful papules on his back.

Six weeks ago your colleague prescribed him topical benzoyl peroxide and topical fusidic acid, but he feels that these have not made any difference. He does not take any other medications and has no other past medical history.

Which of the following is the most appropriate treatment to commence?

A.Oral erythromycin

B.Referral for oral isotretinoin

C.Oral oxytetracycline

D.Oral + topical antibiotics

E.Ultraviolet-A (UVA) therapy

Answer:Oral oxytetracycline

Explanation:

Tetracyclines are the first-line oral antibiotics for moderate-severe acne vulgaris

Important for meLess important

Tetracyclines are the first-line oral antibiotics for moderate-severe acne vulgaris. This patient has some papular lesions and therefore oral treatment is indicated.

A referral for oral isotretinoin should be made if antibiotic treatment has been unsuccessful, or if there is evidence of scarring.

You should avoid prescribing oral and topical antibiotics together. You should, however, prescribe an oral antibiotic and continue one non-antibiotic topical treatment.

UVA therapy is more commonly used in conditions such as psoriasis. It does not play a role in the management of acne vulgaris.

Question:

A 55-year-old man comes to see you following a myocardial infarction 4 weeks ago. He has been started on ramipril, bisoprolol, aspirin and clopidogrel following the event. He was also offered a statin but felt that he was being asked to start too many medications at the same time so he declined the statin at that time.

He reports that since then he has been reading up about the beneficial effects of being on a statin and would like to start statin therapy.

Which one of the following should this patient be started on?

A.Rosuvastatin 20mg

B.Simvastatin 40mg

C.Atorvastatin 20mg

D.Atorvastatin 40mg

E.Atorvastatin 80mg

Answer:Atorvastatin 80mg

Explanation:

Cardiovascular disease: atorvastatin 20mg for primary prevention, 80mg for secondary prevention

Important for meLess important

Atorvastatin 80mg is a high-intensity statin which should be given following a cardiovascular event for secondary protection.

A lower dose should be started if there are drug interactions. If atorvastatin 80mg is not tolerated then a lower dose or an alternative statin should be prescribed.

Question:

A 66-year-old woman comes to see you following her first TIA (transient ischaemic attack). She reports that she is generally fit and well so was shocked to find out that she had had a 'mini stroke' she is keen to get back to her usual day to day activities and would like to know more about when she can start driving her car again.

Which one of the following would you advise?

A.Must inform DVLA immediately and have a medical assessment before a decision is made as to whether she can continue driving

B.Can start driving if symptom free after 1 month - no need to inform the DVLA

C.Can start driving if symptom free after 3 months - no need to inform the DVLA

D.Can start driving immediately if symptom free -no need to inform the DVLA

E.Can start driving if symptom free after 2 months and must inform the DVLA

Answer:Can start driving if symptom free after 1 month - no need to inform the DVLA

Explanation:

For group 1 drivers, following a single TIA they can start driving if symptom-free for 1 month and there is no need for them to inform the DVLA.

Question:

A 24-year-old woman presents with dyspnoea, paraesthesia and feeling acutely light-headed. An arterial blood gas (ABG) sample reveals:

pO2 13.2 kPa

pCO2 3.2 kPa

pH 7.49

HCO3- 23 mmol/l

How would you describe the acid-base balance?

A.Respiratory acidosis with partial metabolic compensation

B.Respiratory acidosis with no metabolic compensation

C.Respiratory alkalosis with partial metabolic compensation

D.Respiratory alkalosis with no metabolic compensation

E.Metabolic alkalosis with partial respiratory compensation

Answer:Respiratory alkalosis with no metabolic compensation

Explanation:

The pH is high confirming alkalaemia. The pCO2 is low confirming a respiratory alkalosis. The HCO3- is normal confirming no metabolic derangement or compensation. The pO2 is normal suggesting no impairment of gas exchange. Therefore this is a respiratory alkalosis with no metabolic compensation, which is what would be expected during a panic attack.

Question:

A mother presents with her 12-year-old daughter to the emergency department complaining that she has recently become very sleepy and confused, alongside having a fever and lethargy. On examination, you notice the child's skin appears quite pale and also has a purple skin rash that does not disappear with the 'glass test'. Her peripheries feel cold to the touch.

Given the likely diagnosis, what treatment regime is most appropriate in this situation?

A.Antibiotics + dexamethasone

B.IV fluids

C.IV fluids + antibiotics

D.IV fluids + dexamethasone

E.IV fluids + dexamethasone + antibiotics

Answer:IV fluids + antibiotics

Explanation:

Intravenous dexamethasone should not be given to patients with suspected meningococcal septicaemia

Important for meLess important

This girl is presenting with the features of meningococcal septicaemia: reduced consciousness, confusion, fever, lethargy, a non-blanching rash, and peripheral hypoperfusion.

For meningococcal septicaemia, IV fluids are needed to improve the circulating volume and treat the suspected hypotension in this patient. Additionally, antibiotics are needed to treat her underlying infection. Hence 'IV fluids + antibiotics' is the correct answer.

While dexamethasone is often given for bacterial meningitis to reduce neurological complications, it is contraindicated in meningococcal septicaemia, which this patient likely has given the presence of a non-blanching purpuric rash. Hence the first option (antibiotics + dexamethasone) is incorrect.

IV fluids alone are not sufficient treatment for this patient's meningococcal septicaemia, as she needs antibiotics to treat the underlying infection. Hence this option is incorrect.

Similarly, the fourth (IV fluids + dexamethasone) and fifth (IV fluids + dexamethasone + antibiotics) options are incorrect for this patient because they include dexamethasone, which cannot be given in meningococcal septicaemia.

Question:

A 72-year-old man is admitted to the Emergency Department. His wife reports that he has recently been depressed and around four hours ago he took 28 atenolol 50mg tablets. On admission his pulse is 40 / min and blood pressure is 96/60 mmHg. What is the most appropriate first-line treatment?

A.Intravenous atropine

B.Gastric lavage

C.Electrical cardioversion

D.Insertion of a temporary pacing wire

E.Intravenous adenosine

Answer:Intravenous atropine

Explanation:

Gastric lavage should only be attempted (if at all) if patients present within 1-2 hours of taking the overdose.

Question:

A 25 year-old man presents with a history of sudden hearing loss on the right side. He had no preceding coryzal illness, fevers, headache or ear pain. On examination his ear canal and tympanic membrane appear normal. Weber testing localises to the left side. What is the appropriate management?

A.Refer routinely to ENT

B.Watch and wait

C.Refer urgently to ENT and start high dose oral steroids

D.Start oral aciclovir and high dose steroids

E.Start decongestant nasal spray and intranasal steroids

Answer:Refer urgently to ENT and start high dose oral steroids

Explanation:

This man has sudden sensorineural hearing loss, which in the vast majority of cases is idiopathic.

There is some evidence that high dose steroids (60mg/day) for seven days improves prognosis, so all patients should start treatment as soon as possible. ENT assessment should be arranged as soon as possible to allow pure tone audiometry testing and to arrange an MRI to exclude an acoustic neuroma. Intra-tympanic steroids can also be given if there is no response to oral steroids.

Aciclovir is not routinely recommended as there is no evidence of benefit.

Question:

A 19-year-old female starts Microgynon 30 (combined oral contraceptive pill) on day 8 of her cycle. How long will it take before it can be relied upon as a method of contraception?

A.Immediately

B.2 days

C.5 days

D.7 days

E.Until first day of next period

Answer:7 days

Explanation:

Contraceptives - time until effective (if not first day period):

instant: IUD

2 days: POP

7 days: COC, injection, implant, IUS

Important for meLess important

Question:

A 35-year-old male patient who is known to have haemophilia A presents to the emergency department persistently haemorrhaging from an open fractured femur following an RTA, you choose to reverse the coagulopathy with cryoprecipitate.

Which of the following is present in cryoprecipitate?

A.Prothrombin

B.Factor X

C.Protein C

D.Factor IX

E.Factor VIII

Answer:Factor VIII

Explanation:

Cryoprecipitate contains factor VIII, fibrinogen, von Willebrand factor and factor XIII

Important for meLess important

Patients with haemophilia A are genetically deficient in factor VIII (factor IX for haemophilia B), which is what the cryoprecipitate would be used to replace in this instance

Prothrombin is not found in cryoprecipitate

Protein C deactivates enzymes and inhibits coagulation

Factor IX is deficient is haemophilia B and not present in cryoprecipitate

Factor X is not a component in cryoprecipitate but does require vitamin K to form and therefore one of the factors targeted by warfarin (these being X, IX, VII, II)

Question:

A 67-year-old diabetic patient has been on a surgical ward for one week, for treatment of a necrotic toe. His current medications include metformin and gliclazide. Since admission, he has received paracetamol, morphine, and daily enoxaparin.

His initial bloods showed:

K+ 4.0 mmol/L (3.5 - 5.0)

One week later, his blood results showed:

K+ 5.4 mmol/L (3.5 - 5.0)

Which medication is most likely to have caused the rise in serum potassium?

A.Metformin

B.Gliclazide

C.Paracetamol

D.Morphine

E.Enoxaparin

Answer:Enoxaparin

Explanation:

Heparin can cause hyperkalaemia

Important for meLess important

Heparin, including low molecular weight heparin, can cause a rise in serum potassium.

Metformin, gliclazide, paracetamol and morphine do not tend to cause hyperkalaemia.

Question:

Whilst examining a 3 day old baby born at 36 weeks gestation, you notice a very prominent murmur during systole and diastole, loudest over the left sternal edge. A chest X-Ray shows massive cardiomegaly, particularly prominent in the right atrium. From the notes you see that the mother of the child has bipolar disorder, but is otherwise healthy and has had no congenital heart problems. There is no relevant family history besides a paternal cousin who developed cardiomyopathy in their late teens. Given the history what is the most likely underlying diagnosis?

A.Ventricular septal defect

B.Tetralogy of fallot

C.Mitral valve prolapse

D.Aortic Stenosis

E.Ebstein's anomaly

Answer:Ebstein's anomaly

Explanation:

Ebstein's anomaly is caused by the use of lithium in pregnancy. It occurs when the posterior leaflets of the tricuspid valve are displaced anteriorly towards the apex of the right ventricle. The creates tricuspid regurgitation (pan-systolic murmur) and tricuspid stenosis (mid-diastolic murmur). There is also enlargement of the right atrium. Ventricular septal defects present with a pan-systolic but not diastolic murmur. Tetralogy of fallot typically presents at 1-2 months of age rather than in the days after birth. Mitral valve prolapse presents with a mid systolic click followed by a late systolic murmur but has no diastolic element. Aortic stenosis usually presents with an ejection systolic murmur and would generally be seen in adult patients over the age of 65.

Question:

Stephanie is a 50-year-old black woman who presents to her general practitioner for routine check-up of her hypertension. At her last two appointments, her hypertension has been poorly controlled, despite current treatment with amlodipine 10mg once daily. On examination today, her blood pressure is 160/100mmHg, pulse 70/minute, respiratory rate 15/min, and she is afebrile.

In order to attempt to control Stephanie's hypertension, what would be the next appropriate action?

A.Add spironolactone

B.Add metoprolol

C.Add candesartan

D.Cease amlodipine and swap to ramipril

E.Increase dose of amlodipine

Answer:Add candesartan

Explanation:

Poorly controlled hypertension, already taking a calcium channel blocker - add an ACE inhibitor or an angiotensin receptor blocker or a thiazide-like diuretic

Important for meLess important

In patients already taking a calcium channel blocker, the next step to manage their poorly controlled hypertension is to add an ACE inhibitor or angiotensin receptor blocker (ARB) or a thiazide-like diuretic. In this case, as she is black an ARB is the better choice.

Metoprolol is a beta-blocker, and this is not used often in the management of hypertension.

Increasing the dose of amlodipine would increase the potential risk of side effects, and for this reason it is generally better to add multiple drugs at lower doses, than to increase one drug to a maximum dose.

Question:

A 56-year-old woman develops a rash in both axilla:

© Image used on license from DermNet NZ

What is the most likely diagnosis?

A.Pellagra

B.Erythema gyratum repens

C.Hidradenitis suppurativa

D.Tinea corporis

E.Acanthosis nigricans

Answer:Acanthosis nigricans

Explanation:

This image shows the typical brown, velvety patches which affect the axilla, neck and groin.

Question:

A 70-year-old female presents to her general practitioner with a vesicular rash affecting the right-side of her face and tip of her nose. She is diagnosed with herpes zoster ophthalmicus (HZO).

Which of the following is the most likely complication in this lady?

A.Lens dislocation

B.Central retinal artery occlusion

C.Central retinal vein occlusion

D.Cataracts

E.Anterior uveitis

Answer:Anterior uveitis

Explanation:

Hutchinson's sign: vesicles extending to the tip of the nose. This is strongly associated with ocular involvement in shingles

Important for meLess important

Correct answer: anterior uveitis - given that she has vesicles on her nose, it is likely she has ocular involvement therefore she is at risk of anterior uveitis.

Treatment:

Herpes zoster ophthalmicus is treated with antivirals and/or steroids

If ocular involvement (most likely in this case given Hutchinson's sign) then an ophthalmology review is warranted urgently

Question:

A 47-year-old man with no fixed abode is brought into the emergency department by ambulance. On examination he looks extremely pale and is shivering. His speech is slurred and has a minimally-reduced level of consciousness. His Glasgow coma scale score (GCS) is 13 and his body temperature is 34.1ºC. The senior house office (SHO) has requested bloods, an electrocardiogram (ECG) and a CT head.

In keeping with the clinical findings, what would you expect to see on the ECG?

A.Heart rate of 110/min and U waves

B.Heart rate of 45/min and U waves

C.Heart rate of 45/min and J waves

D.Prolonged QT interval and mild ST-elevation

E.Asystole

Answer:Heart rate of 45/min and J waves

Explanation:

Bradycardia is seen on the ECG of patients with hypothermia

Important for meLess important

The ECG changes associated with hypothermia include:

Bradycardia (<60bpm) and not tachycardia

J waves

Prolonged PR, QT and QRS intervals

Shivering artefacts

VT, VF or asystole

Asystole dominates once the core body temperature drops to below 16ºC. ST-elevation is seen in myocardial infarction. The source of U waves is uncertain, however they are thought to represent the repolarisation of Purkinje fibres and may be seen elevated in patients with hypokalaemia.

Question:

A 72-year-old woman presents to the eye casualty department reporting bilateral worsening vision over the last 10 years. The patient says that this is affecting her ability to read books.

On examination, a central visual impairment is detected. Metamorphopsia is also demonstrated using an Amsler grid. Small yellow deposits are visualised in the macula on fundoscopy.

Based on the most likely diagnosis, what is the most appropriate medical management for this patient?

A.Monthly intravitreal anti-VEGF injections

B.Omega 3 fish oil capsules

C.Phacoemulsification

D.Photodynamic therapy

E.Vitamin supplementation

Answer:Vitamin supplementation

Explanation:

There is no curative medical treatment for dry AMD. High dose of beta-carotene, vitamins C and E, and zinc can be given to slow deterioration of visual loss

Important for meLess important

Vitamin supplementation is correct. This patient has dry age-related macular degeneration, highlighted by poor central visual acuity and metamorphosis (visual distortion where straight lines appear curved). This condition is differentiated from wet age-related macular degeneration due to the long time course (10 years) and the appearance of drusen (yellow deposits) on fundoscopy. Whilst there is no curative medical treatment for dry age-related macular degeneration, vitamins C and E, beta-carotene, and zinc supplementation have been shown to reduce its' progression.

Phacoemulsification is incorrect. This is a type of cataract surgery and is not used in the management of dry age-related macular degeneration.

Monthly intravitreal anti-VEGF injections is incorrect. They are used in the management of wet age-related macular degeneration but do not play a role in the management of dry age-related macular degeneration.

Photodynamic therapy is incorrect. It is used in the management of wet age-related macular degeneration but does not play a role in the management of dry age-related macular degeneration.

Omega 3 fatty acid supplementation is incorrect. This alone does not reduce the risk of progression in dry age-related macular degeneration. A diet high in green leafy vegetables and fish is recommended alongside vitamin supplementation. Additionally, omega 3 supplementation may be specifically used in the management of dry eye syndrome, but not in dry age-related macular degeneration.

Question:

A 24-year-old man presents due to severe pain when defecating for the past 2 weeks. He has occasionally noted some blood on the toilet paper when wiping himself. On examination a tear is seen on the posterior midline of the anal verge. Which one of the following should not be recommended as a treatment option?

A.Bulk-forming laxatives

B.Application of lubricant prior to defecation

C.Topical steroids

D.Dietary advice

E.Paracetamol

Answer:Topical steroids

Explanation:

Topical steroids have been shown in studies to be of little benefit in treating anal fissures

Question:

A 45-year-old man attends for a follow-up appointment after starting on rate control treatment for their atrial fibrillation. They have had no episodes of palpitations, light-headedness, or syncope.

On examination, they have an irregularly, irregular pulse with a heart rate of 82 beats per minute. Overall, he feels his atrial fibrillation is well-controlled but he has noticed that his bowel habit has altered since starting this treatment, and has had problems moving his bowels.

What rate-control medication is he most likely to be on?

A.Diltiazem

B.Bisoprolol

C.Verapamil

D.Metoprolol

E.Digoxin

Answer:Verapamil

Explanation:

Verapamil can cause constipation

Important for meLess important

Calcium channel blockers commonly cause constipation. Of the two calcium channel blockers commonly used as rate control for atrial fibrillation, verapamil is most commonly associated with constipation and NICE guidance recommends people starting on verapamil eat more fibre and increase their water consumption to counteract this. The reason that calcium channel blockers cause constipation is that their mechanism of action is to relax smooth muscle which inadvertently relaxes the muscles of the gut thereby reducing motility.

Diltiazem may also cause constipation but this side-effect is less common than with verapamil.

Digoxin is more likely to cause nausea, vomiting and diarrhoea.

Bisoprolol and metoprolol are examples of beta-blockers. They are associated with diarrhoea rather than constipation as a side-effect.

Question:

An 18-year-old presents with amenorrhoea for 6 months. She previously had irregular periods with a cycle ranging from 25-39 days long and has had instances where a whole cycle was missed. She is worried about the long-term implications for her ability to conceive. She denies being sexually active and has no syndromic features on examination. There is no significant acne or excess body hair. Her BMI is 20 kg/m² and she is training to run a full marathon.

What is the likely aetiology of her condition?

A.Hypothalamic hypogonadism

B.Polycystic ovarian syndrome (PCOS)

C.Pregnancy

D.Primary ovarian failure

E.Primary pituitary failure

Answer:Hypothalamic hypogonadism

Explanation:

In a very athletic woman, hypothalamic hypogonadism is a common cause of secondary amenorrhoea

Important for meLess important

This is a case of secondary amenorrhoea in a young woman due to excessive exercise. She is training for a marathon and has previously had issues with oligomenorrhoea. Where the body has low levels of fat, the hypothalamus releases less gonadotrophin-releasing hormone which in turn causes hypogonadism. This is thought to occur because very low-fat levels in a female are incompatible with successful pregnancy.

This woman could have PCOS if an ultrasound depicted ovaries with many cysts. However, clinically, she does not fulfil the Rotterdam criteria. She does have oligomenorrhoea but does not have signs of hyperandrogenism. She is also of a lower-normal weight.

This woman could also be pregnant, it has not been excluded with urine or serum pregnancy tests and although she says she is not sexually active, this might not be completely true. In the first instance, she should have a urine pregnancy test in this situation.

Primary ovarian failure is possible but not the most likely cause in this case. It should nevertheless be investigated with gonadotrophins. In the case of ovarian failure, they should be elevated indicating the hypothalamus and pituitary have no negative feedback on their release of hormones.

Primary pituitary failure is less likely in this case because her symptoms are isolated to amenorrhoea and she has no other issues of note in the history and examination. There are many causes of hypopituitarism and one of the most concerning would be a neoplasm. If suspected, blood tests including prolactin and an MRI should be performed to exclude this diagnosis.

Question:

A 49-year-old man of African ethnicity presents to the GP following ambulatory home blood pressure monitoring results. This gave an average reading of 152/96 mmHg. He has no past medical history.

Today's observations are a heart rate of 78 bpm, blood pressure is 160/102 mmHg, and oxygen saturations are 97%.

What is the most appropriate next step for the GP?

A.Lifestyle advice

B.Losartan

C.Nifedipine

D.Ramipril

E.Verapamil

Answer:Nifedipine

Explanation:

Newly diagnosed patient of black African or African–Caribbean origin with hypertension - add a calcium channel blocker

Important for meLess important

This patient has stage 2 hypertension as evidenced by ambulatory blood pressure monitoring showing an average blood pressure >150/95 mmHg, therefore, treatment is indicated.

Nifedipine is correct as this is a calcium channel blocker (CCB). This is a dihydropyridine CCB and is the first line for patients of African or African-Caribbean ethnicity with hypertension. This is because ACE inhibitors are less efficacious in patients of these ethnicities.

Lifestyle advice is incorrect. This patient's average reading on his ambulatory blood pressure monitoring is greater than 150/95mmHg, meaning drug treatment is required.

Losartan is incorrect as this is an angiotensin receptor blocker (ARB) and is second-line for patients of African or African-Caribbean ethnicity. The first-line option for patients of these ethnicities is CCBs such as nifedipine or amlodipine as these are more efficacious for this use.

Ramipril is incorrect. Although this is the first-line option for patients under 55 years of age or those with type 2 diabetes mellitus, they are less efficacious in patients of African or African-Caribbean ethnicity, therefore CCBs are used first-line instead in these scenarios.

Verapamil is incorrect. Although this is also a CCB, this differs from nifedipine as it is rate-limiting. Rate-limiting CCBs are typically used in patients with co-existing angina where beta-blockers are contraindicated or not tolerated. This patient does not have a past medical history of angina, therefore, this option is less appropriate.

Question:

A 25-year-old male has come to the emergency department after sustaining an injury in a rugby game earlier that morning. When he was tackled and went to ground, another player's boot impacted his left ear. He did not lose consciousness and only had some ear pain immediately after. In the ensuing minutes the pain worsened and he noticed a persistent ringing. When he felt his ear it was tender and swollen, with other players telling him it looked very red and puffy.

On examination, the patient does not exhibit any neurological deficit or pain other than in his left ear. The ear is ecchymotic and swollen with loss of normal anatomy to the anterosuperior pinna.

What is the most appropriate next step?

A.Broad-spectrum antibiotics

B.Discharge with audiometry appointment

C.Discharge with cool compress

D.Urgent CT head

E.Urgent ENT referral

Answer:Urgent ENT referral

Explanation:

Auricular haematomas need same day assessment by ENT

Important for meLess important

Auricular haematomas occur after direct trauma to the ear and is due to a build up of blood between the cartilage and perichondrium. This can restrict blood supply and lead to necrosis of the connective tissue. ENT must therefore assess the patient quickly to decide how to manage it. Treatment is usually incision and drainage +/- a draining wick depending on the size.

There is not normally a breach to the skin so antibiotics are not mandatory. If there is an open wound you may consider broad-spectrum antibiotics and/or a tetanus shot.

A complication of poorly treated auricular haematomas, or haematomas that aren't drained quick enough is hearing loss. In this case patients will need audiometry to assess the level of damage.

A cool compress may help with the pain and a small amount of the swelling but patients need to be seen by a specialist immediately.

If the patient also had post-auricular ecchymosis (battle sign), then an urgent CT head would need to be ordered in order to assess for base of skull fractures. This patient has not presented this way so there is no urgent imaging needed.

Question:

A 48-year-old man presents to the endocrine clinic. He has been feeling tired and lethargic for several weeks, with intolerance of cold weather and weight gain. More recently, he has developed a headache which is worse at night.

His blood tests show the following:

Thyroid stimulating hormone (TSH) 0.2 mU/L (0.5-5.5)

Free thyroxine (T4) 2.1 pmol/L (9.0 - 18)

Prolactin 2 ng/mL (2 - 18)

FSH 0 IU/L (1-7)

LH 0 IU/L (1-8)

What is the most likely underlying diagnosis?

A.Glioma

B.Haemangioblastoma

C.Hypothyroidism

D.Pituitary adenoma

E.Pituitary apoplexy

Answer:Pituitary adenoma

Explanation:

Non-functioning pituitary tumours present with hypopituitarism and pressure effects

Important for meLess important

Pituitary adenomas are a type of brain tumour that commonly occurs in people aged 30-50. 15% are non-functioning, and thus present with hypopituitarism and mass effect symptoms, such as postural headache and visual loss.

Gliomas can present with headaches as above, but would not be expected to cause hypopituitarism.

Haemangioblastomas are vascular tumours commonly associated with Von Hippel Lindau syndrome. They usually occur in the cerebellum, and would not be expected to cause hypopituitarism.

Hypothyroidism is incorrect. While the levels of T4 are low, indicating reduced activity of the thyroid gland, the underlying diagnosis, in this case, is a pituitary adenoma. Hypothyroidism alone would not explain the reduced gonadotropins and borderline-low prolactin.

Pituitary apoplexy is commonly seen in the presence of a pituitary tumour and is caused by bleeding into or impaired blood supply of the pituitary, This generally presents with sudden onset headache, followed by symptoms of non-functioning pituitary. The lack of acuteness in this presentation makes this unlikely.

Question:

A 68-year-old gentleman presents to the emergency department with a day history of dyspnoea and productive green sputum. His past-medical history is significant for hypertension, type 2 diabetes, hypercholesterolemia and osteoarthritis. He takes ramipril, simvastatin and paracetamol as and when he needs for his osteoarthritis. He is diagnosed with community-acquired pneumonia and discharged with a penicillin-based antibiotic. He returns shortly after complaining of lower back pain, dysuria and haematuria. Urine dip is positive for blood and proteins. Microscopic examination of his urine reveals eosinophilic casts. What is the origin of his renal failure?

A.Disseminated Streptococcus pneumoniae infection

B.Drug reaction to paracetamol

C.Drug reaction to penicillin-based antibiotics

D.Rhabdomyolysis from simvastatin/penicillin through CYP450 inhibition

E.Diabetic nephropathy

Answer:Drug reaction to penicillin-based antibiotics

Explanation:

Penicillin can cause acute interstitial nephritis

Important for meLess important

Eosinophilic casts are a sign of tubulointerstitial nephritis. This is often due to a drug reaction. Streptococcus pyogenes is associated with post-streptococcal glomerular nephritis, not Streptococcus pneumoniae which is the likely causative agent of this patient's pneumonia.

Paracetamol is not considered nephrotoxic in therapeutic doses.

Rhabdomyolysis occurs from erythromycin and simvastatin, penicillin-based antibiotics do not inhibit CYP450.

Diabetic nephropathy would not present this acutely. Eosinophilic casts would not be present.

Question:

A 44-year-old man presents to his GP with a fever. When measured his blood pressure is 160/90mmHg and he is sent for blood tests. He is found to have mild renal impairment and a diagnosis of acute interstitial nephritis is suspected.

Na+ 135 mmol/l

K+ 4.2 mmol/l

Urea 13.2 mmol/l

Creatinine 120 µmol/l

Which of the following medications is the most likely cause of this man's presentation?

A.Paracetamol

B.Codeine

C.Aceclofenac

D.Morphine

E.Rivaroxaban

Answer:Aceclofenac

Explanation:

NSAIDs are a cause of acute interstitial nephritis

Important for meLess important

This question is asking about causative agents for acute interstitial nephritis. Of the above options, the correct answer is aceclofenac, a non-steroidal anti-inflammatory drug (NSAID).

Many types of drugs can cause acute interstitial nephritis however the most common types are antimicrobial agents, NSAIDs, salicylates, ACE inhibitors and diuretics.

Question:

A 32-year-old man is seen in clinic complaining of weakness in his left arm. He works washing dishes in a restaurant and notices his left arm fatiguing much quicker than the right. He says this has been getting steadily worse over the last year. He has come to see you because he has started to get a tingly pain in his left hand.

He is currently taking Sertraline for depression and uses a Salbutamol inhaler for asthma. His notes in clinic show imaging revealing a congenital Arnold-Chiari malformation.

On examination you find the following:

Wasting of the musculature of the left arm

Reduced reflexes in both arms and legs

Up-going plantars bilaterally

He is not complaining of any sexual dysfunction, incontinence or peri-anal numbness.

What is the most likely diagnosis?

A.Spinal cord compression

B.Syringomyelia

C.Brown-Sequard syndrome

D.Brachial plexus injury

E.Cauda equina syndrome

Answer:Syringomyelia

Explanation:

Syringomyelia is associated with the Arnold-Chiari malformation

Important for meLess important

In Syringomyelia a fluid filled cyst forms in spinal cord and expands over time. This causes slowly progressive neurological symptoms as seen in this patient. Syringomyelia is also associated with the Arnold-Chiari malformation.

Spinal cord compression would produce an acute clinical picture. Brown-sequard syndrome results from lateral hemisection of the spinal cord. You would expect to see a history of trauma, often a stabbing injury. There is no saddle anaesthesia or incontinence to suggest cauda equina syndrome.

Question:

A 28-year-old woman presents 2 weeks after returning from a holiday kayaking with her family.

She reports feeling exhausted as she has been having ongoing fatty diarrhoea with abdominal pain, bloating and flatulence, all of which started while abroad, which appear worse when she takes any dairy.

What is the most likely cause of her presentation?

A.Salmonella

B.Cholera

C.Giardiasis

D.Hepatitis D

E.Rotavirus

Answer:Giardiasis

Explanation:

Ongoing diarrhoea, lethargy, bloating, flatulence, steatorrhoea, weight loss +/- recent travel → ?giardiasis

Important for meLess important

Giardiasis is the correct answer as the patient is presenting with the typical symptoms of abdominal pain, bloating/flatulence, steatorrhoea, lethargy after ongoing diarrhoea and has recently travelled. Foreign travel and river/lake water swimming (or drinking) are risk factors. Lactose intolerance can develop after giardiasis. She would benefit from treatment with metronidazole.

Cholera is incorrect because the symptoms are usually very acute and only last a few days. It is also characterised by watery, rather than fatty diarrhoea.

Hepatitis D is incorrect because while hepatitis A can cause infectious diarrhoea and vomiting which can indeed last several weeks, hepatitis D is an entirely different virus, a 'satellite' of hepatitis B, causing severe liver derangement rather than a diarrhoeal illness.

Rotavirus is highly unlikely to be the cause of her symptoms in view of her age. Due to immunity acquired in childhood, most adults are not susceptible to rotavirus, but asymptomatic infections in adults can maintain the transmission of infection in the community. Symptoms also usually resolve within 1-2 weeks.

Salmonella is incorrect because it has a short incubation period (hours to days) and the diarrhoea is usually watery (occasionally mucoid or bloody) and lasts 4-7 days. This has been ongoing for over 2 weeks now.

Question:

A 34-year-old patient had attended her GP one week ago due to unexplained weight loss, a constant feeling of anxiety and a new tremor. In addition, she felt that her eyes had become red and felt 'gritty'.

The GP ordered thyroid function tests:

Thyroid stimulating hormone (TSH) 0.2 mU/L (0.5 - 5)

Free thyroxine (T4) 27.2 mU/L (9.0 - 18)

The patient was started on propranolol for symptom management whilst awaiting a referral to the endocrinology department. However, she has called back today because she feels her symptoms have not improved and are becoming unmanageable.

What additional treatment should the GP offer?

A.Bisoprolol

B.Carbimazole

C.Flecainide

D.Propylthiouracil

E.Radioactive iodine therapy

Answer:Carbimazole

Explanation:

Patients with Graves' disease are generally managed by secondary care but carbimazole may sometimes be started for troublesome symptoms whilst waiting

Important for meLess important

This patient has hyperthyroid symptoms, and due to the presence of ocular symptoms NICE recommend considering a diagnosis of Grave's disease. NICE state that a beta-blocker should be considered to manage adrenergic symptoms (palpitations, tremor, anxiety, etc.) whilst awaiting specialist referral. This patient was started on propranolol but is still troubled by her symptoms. In this scenario, NICE guidelines suggest that carbimazole treatment should be considered. Carbimazole is an antithyroid drug. None of the other treatment options listed are appropriate.

Bisoprolol is another beta-blocker. This is not recommended by NICE for the management of Graves' disease and carbimazole is a more appropriate choice.

Flecainide is a class Ic antiarrhythmic drug that can be used in the management of supraventricular tachycardias and ventricular tachycardias. It is not indicated for the management of hyperthyroidism.

Propylthiouracil is an antithyroid drug, like carbimazole. However, propylthiouracil is usually not the first-line antithyroid drug used as there is a small chance of liver damage associated with its use. It is therefore usually considered if carbimazole is not tolerated and thus is not correct here.

Radioactive iodine is another treatment for hyperthyroidism and is the first-line definitive treatment suggested for Graves' disease by NICE. However, this would be decided by a specialist and is contraindicated in patients with active eye disease, so would most likely not be appropriate for this patient currently.

Question:

A 70-year-old woman attends your clinic complaining of fatigue, excessive thirst, insomnia, muscle weakness, and constipation. Her examination, full blood count, renal function tests, and liver function tests are all normal. The other blood tests show the following results:

Calcium 3.3 mmol/L (2.1-2.6)

Phosphate 0.65 mmol/L (0.8-1.4)

Magnesium 0.8 mmol/L (0.7-1.0)

Thyroid-stimulating hormone (TSH) 3.5 mU/L (0.5-5.5)

Free thyroxine (T4) 12 pmol/L (9.0-18)

Parathyroid hormone (PTH) 55 pg/mL (14-65)

Vitamin D 200 ng/ml (≥30)

What is the likely diagnosis of this patient?

A.Bony metastasis

B.Primary hyperparathyroidism

C.Secondary hyperparathyroidism

D.Tertiary hyperparathyroidism

E.Tuberculosis

Answer:Primary hyperparathyroidism

Explanation:

The PTH level in primary hyperparathyroidism may be normal

Important for meLess important

This patient is presenting with symptoms of hypercalcaemia - bones, stones, abdominal moans & psychic groans. Her blood test shows raised calcium levels, which confirms hypercalcaemia. She has normal parathyroid hormones; normally these would be decreased in the presence of high calcium levels. The patient has primary hyperparathyroidism, causing the calcium level to be raised.

Secondary hyperparathyroidism is caused by another disease (usually chronic kidney disease), leading to chronic hypocalcaemia and therefore hyperparathyroidism. The high PTH level then increases calcium levels to either normal or high levels. This patient's normal parathyroid hormone levels rule out secondary hyperparathyroidism.

Her normal PTH level rules out tertiary hyperparathyroidism. The PTH levels would be markedly raised if this patient had tertiary hyperparathyroidism.

Although tuberculosis can cause hypercalcaemia, there is no indication from the question that this patient has been abroad or has come into contact with tuberculosis. The scenario also does not give any examination or blood result finding to suggest bony metastasis. Primary hyperparathyroidism is the most common cause of isolated hypercalcaemia and is therefore the most likely diagnosis in this patient.

Question:

Edith is a 50-year-old woman who has been complaining of shortness of breath. She attends for a spirometry assessment.

The results are as follows:

Forced vital capacity (FVC) Reduced

Forced expiratory volume in one second:forced vital capacity ratio (FEV1:FVC ratio) Increased

Transfer factor for carbon monoxide (TLCO) Reduced, reflecting impaired gas exchange

Which of the following diagnoses is most likely?

A.Asthma

B.Chronic obstructive pulmonary disease (COPD)

C.Bronchiectasis

D.Lung tumour

E.Pulmonary fibrosis

Answer:Pulmonary fibrosis

Explanation:

Pulmonary fibrosis causes restrictive spirometry picture (FEV1:FVC >70%, decreased FVC) and impaired gas exchange (reduced TLCO)

Important for meLess important

The results in the scenario suggest restrictive lung disease. Of the available answers, only pulmonary fibrosis is a restrictive illness; the rest will show obstructive patterns. Pulmonary fibrosis is therefore the only correct answer.

FVC (Forced Vital Capacity) The volume of air in the lungs that can be exhaled following a deep inhalation

FEV1 (Forced Expiratory Volume in 1 second) A measure of how much air can be exhaled in one second following a deep inhalation

TCLO (Transfer factor for carbon monoxide, also known as diffusing capacity for carbon monoxide or DLCO) A measure of how much oxygen diffuses from the lung alveoli to blood in the capillaries

Abnormal spirometry is divided into restrictive and obstructive ventilatory patterns:

A restrictive ventilatory pattern is seen in conditions where lung volume is reduced - eg, pulmonary fibrosis, scoliosis. The spirometry results will show the following:

FVC and FEV1 are reduced proportionately so the FEV1/FVC is normal

FVC reduced <70%

FEV1 reduced

An obstructive ventilatory pattern is seen in conditions in which airways are obstructed due to diffuse airways narrowing of any cause - eg, COPD, cystic fibrosis, asthma, bronchiectasis and airway obstruction due to lung tumours. Spirometry results will show the following:

The FVC and FEV1 are reduced disproportionately so the FEV1/FVC reduced (<70%)

FVC normal or reduced

FEV1 reduced <80%

TLCO is reduced in any condition that reduces the effective surface area of the alveoli. A reduced TLCO suggests impaired gas exchange. A reduced TLCO can be seen in both restrictive and obstructive conditions (e.g. damage to the capillary bed in COPD can be a cause) but most commonly it is associated with restrictive diseases such as pulmonary fibrosis.

Question:

A 76-year-old, frail elderly woman on the geriatric ward complains of sleepless nights and requests to be prescribed something to help with her insomnia. The consultant prescribes a short-course of zopiclone.

Which one of the risks is associated with zopiclone use in the elderly?

A.Convulsions

B.Tremor

C.Hyperventilation

D.Diarrhoea

E.Increased risk of falls

Answer:Increased risk of falls

Explanation:

Zopiclone increases the risk of falls in elderly patients

Important for meLess important

Zopiclone binds acts GABAA-containing receptors, causing an enhancement of the actions of GABA to produce the therapeutic and adverse effects of zopiclone. It has a similar mode of action to benzodiazepines.

Its side effects include: agitation, bitter taste in mouth, constipation, decreased muscle tone, dizziness, dry mouth, and increased risk of falls (especially in the elderly).

Diarrhoea is not a known adverse effect of zopiclone.

Convulsions, tremors and hyperventilation may be seen in zopiclone withdrawal.

Question:

A 64-year-old woman presents with profuse watery diarrhoea, vomiting and abdominal pain. She was recently treated for severe pneumonia with IV antibiotics.

She was hypotensive despite IV fluids and was quickly admitted to intensive care for vasopressors.

A CT abdomen and pelvis revealed the following:

Gross colonic dilatation, measuring up to 6.7cm in diameter.

Generalised circumferential wall thickening suggestive of pancolitis.

What is optimal management in the first instance?

A.Colonic decompression

B.IV hydrocortisone

C.IV vancomycin

D.Oral vancomycin and IV metronidazole

E.Total colectomy

Answer:Oral vancomycin and IV metronidazole

Explanation:

In life-threatening C. difficile infection treatment is with ORAL vancomycin and IV metronidazole

Important for meLess important

This question is alluding to Clostridium difficile infection (CDI), which should be suspected in all patients who have diarrhoea shortly following antibiotic therapy. This patient is haemodynamically unstable from insensible fluid loss and distributive sepsis. There is radiological evidence of colonic dilatation and inflammation suggestive of toxic megacolon.

The recommended medical therapy for life-threatening CDI is oral vancomycin and IV metronidazole. Oral vancomycin has low systemic absorption, making it effective at managing intestinal infections. It can also be given NG or as an enema if needed. Other recommendations include bowel rest, fluid and electrolyte replacement and cessation of medications that impair gut motility.

Colonic decompression may play a role in the management of CDI, however, there is little significant data and poses a risk of perforation.

IV hydrocortisone would be appropriate in the setting of suspected acute severe colitis secondary to inflammatory bowel disease. It would be justified if the patient had known ulcerative colitis or if there was bloody diarrhoea. In this instance, even though a C. diff toxin is not available, CDI is more likely.

IV vancomycin is not recommended given the efficacy of local intestinal action in oral form.

Total colectomy is something to be considered when managing toxic megacolon, however, poses its challenges including intra-operative risk and commitment to a lifelong ileostomy. It is typically recommended in complicated infections i.e. perforation, bleeding, and failure to respond to medical therapy after 48 hours.

Question:

A 60-year-old male patient with known chronic hepatitis B presents with a two week history of right upper quadrant pain, jaundice and weight loss. Observations are unremarkable and he is apyrexial.

What is the most likely cause of this man's symptoms?

A.Acute hepatitis E infection

B.Cholangiocarcinoma

C.Decompensated alcoholic liver disease

D.Hepatocellular carcinoma

E.Pancreatic cancer

Answer:Hepatocellular carcinoma

Explanation:

Deterioration in patient with hepatitis B - ? hepatocellular carcinoma

Important for meLess important

This patient has a number of red flag signs on a background of chronic hepatitis B. This points towards hepatocellular carcinoma (HCC).

Cholangiocarcinoma would present in the same way but given the chronic hepatitis B infection it is not the most likely answer.

Decompensated alcoholic liver disease is possible given the presentation, but there is no mention of alcohol in the history.

Pancreatic cancer does not typically present with right upper quadrant pain.

Hepatitis E co-infection would again not likely present with weight loss.

Question:

A 35-year-old male presents to his GP with a 4-day history of sudden onset dull pain in the orbital region, eye redness, lacrimation and photophobia. On examination, he has an irregular, constricted pupil.

What of the following is the most appropriate management options?

A.Aciclovir eye ointment

B.Chloramphenicol eye drops

C.Latanoprost eye drops

D.Saline eye drops

E.Steroid + cycloplegic eye drops

Answer:Steroid + cycloplegic eye drops

Explanation:

Anterior uveitis is most likely to be treated with a steroid + cycloplegic (mydriatic) drops

Important for meLess important

Aciclovir eye drops are used to treat keratitis. Keratitis present with eye redness, pain and excess tears or discharge. The eye may be difficult to open due to pain or irritation and photophobia may be present. Keratitis would not explain a fixed, constricted pupil.

Chloramphenicol eye drops are the appropriate management for conjunctivitis. Conjunctivitis presents with itching, discharge or excessive tearing and a gritty feeling in one or both eyes. There may be pink discolouration and increased sensitivity to light. Conjunctivitis would not explain a fixed, constricted pupil.

Latanoprost is appropriate management for glaucoma. Glaucoma typically presents with sudden onset eye pain and visual disturbance, often in low light. There may be reddening of the eye or halos around lights.

Saline eye drops are typically used as an ocular lubricant and for irrigation and tear replacement. They would not reduce inflammation in the uvea.

The diagnosis from the history is likely anterior uveitis which should be managed with an urgent referral to ophthalmology and steroid + cycloplegic eye drops.

Question:

A 70-year-old man is investigated for hypercalcaemia. As part of the work-up a skull x-ray is ordered:

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What is the most likely diagnosis?

A.Multiple solid tumour bone metastases

B.Primary hyperparathyroidism

C.Sarcoidosis

D.Multiple myeloma

E.Osteomalacia

Answer:Multiple myeloma

Explanation:

Multiple osteolytic lesions are seen on this x-ray, likely ordered as part of a skeletal survey. This finding in patients with multiple myeloma is often termed 'rain-drop skull' (likened to the pattern rain forms after hitting a surface and splashing, where it leaves a random pattern of dark spots). Note that a very similar, but subtly different finding is found in primary hyperparathyroidism - 'pepperpot skull'.

Whilst skull x-rays are often included in questions about Paget's disease the typical findings are different with a thickened vault and osteoporosis circumscripta usually being seen.

Question:

A 72-year-old man with chronic obstructive pulmonary disease (COPD) presents to his GP with ongoing breathlessness. He currently only has a short-acting muscarinic antagonist (SAMA) prescribed for his symptoms. He says that his SAMA inhaler does provide him with some relief when he uses it. A recent full blood count is shown below:

Hb 140 g/L Male: (135-180)

Platelets 345 \* 109/L (150 - 400)

WBC 7.1 \* 109/L (4.0 - 11.0)

Neuts 5.0 \* 109/L (2.0 - 7.0)

Lymphs 1.2 \* 109/L (1.0 - 3.5)

Mono 0.4 \* 109/L (0.2 - 0.8)

Eosin 0.5 \* 109/L (0.0 - 0.4)

Which of the following changes should be made to his medication?

A.Continue SAMA, add long-acting beta-agonist (LABA) and inhaled corticosteroid (ICS)

B.Continue SAMA, add LABA and long-acting muscarinic antagonist (LAMA)

C.Continue SAMA, add short-acting beta-agonist (SABA)

D.Start theophylline

E.Stop SAMA, start LABA and ICS

Answer:Continue SAMA, add long-acting beta-agonist (LABA) and inhaled corticosteroid (ICS)

Explanation:

COPD - still breathless despite using SABA/SAMA and asthma/steroid responsive features → add a LABA + ICS

Important for meLess important

The correct answer is 'continue SAMA, add long-acting beta-agonist (LABA) and inhaled corticosteroid (ICS)'.

This patient has COPD with persistent breathlessness and so needs an increase in his medication. His full blood count shows an eosinophil count at the top level of normal, so he can be said to have asthmatic/steroid-responsive features. As such, the next step up in medication would be to add a LABA and ICS. His SAMA (reliever inhaler), should be continued alongside this.

'Continue SAMA, add LABA and long-acting muscarinic antagonist (LAMA)' is incorrect. This would be the correct answer if this patient did not have asthmatic/steroid-responsive features.

'Continue SAMA, add short-acting beta-agonist (SABA)' is incorrect as a SABA is another reliever medication. As such it would not add any long-term control to his symptoms.

'Start theophylline' is incorrect. Theophylline is a medication that can be considered as an add-on in COPD management. However, this patient is not on maximum inhaled therapy so it would not be appropriate at this point.

'Stop SAMA, start LABA and ICS' is incorrect as the patient's reliever medication (SAMA) should be continued alongside his new medication.

Question:

A 20-year-old female presents with a 3-month history of abdominal pain. Abdominal ultrasound shows an 8cm mass in the right ovary. Histopathological analysis reveals Rokitansky's protuberance. What is the most likely diagnosis?

A.Follicular cyst

B.Teratoma (dermoid cyst)

C.Endometrioma

D.Ovarian adenocarcinoma

E.Ovarian fibroma

Answer:Teratoma (dermoid cyst)

Explanation:

Teratomas (dermoid cysts) are benign neoplasms derived from multiple germ cell layers. Due to their germ cell origin a range of tissues can be produced within them including skin, hair, blood, fat, bone, nails, teeth, cartilage, and thyroid tissue.

The inner lining of every mature cystic teratoma contains single or multiple white shiny masses projecting from the wall toward the centre of the cysts. When hair, other dermal appendages, bone and teeth are present, they usually arise from this protuberance. This protuberance is referred to as the Rokitansky protuberance.

Ovarian malignancy is unlikely in a young female, however, the risk of malignancy index (RMI) can be calculated using serum CA-125, ultrasound findings and menopausal status if there is suspicion.

Question:

A 16-year-old boy is brought to the Emergency Department by his father, who found him on the floor of their garage. He is ataxic, appears confused and his speech is slurred, however he does not smell of alcohol. He says he 'drank something' because he wanted to end his life. He has vomited twice.

On the blood gas, there is a metabolic acidosis.

What is the most suitable medication for this scenario?

A.Atropine

B.Flumazenil

C.Fomepizole

D.Glucagon

E.Naloxone

Answer:Fomepizole

Explanation:

Ethylene glycol toxicity management - fomepizole. Also ethanol / haemodialysis

Important for meLess important

Fomepizole is correct - it is a competitive inhibitor of alcohol dehydrogenase, which slows down the production of toxic metabolites. It is used to treat methanol poisoning and ethylene glycol poisoning (ethylene glycol is commonly found in antifreeze, which this patient has likely ingested). Ethanol can also be used if fomepizole is not available. In the first 12 hours after ethylene glycol ingestion, patients often appear drunk but don't smell of alcohol. There is often ataxia, vomiting, and dysarthria. It causes a metabolic acidosis with a raised anion gap. Convulsions and coma can then follow.

Atropine is used in organophosphate poisoning (as well as in bradycardia). Organophosphates are often found in insecticides, and poisoning can present with anxiety, restlessness, headache, and muscle weakness. If severe, it can cause widespread paralysis with respiratory failure and bronchospasm with bronchial secretions.

Flumazenil is used in benzodiazepine overdose. This presents with drowsiness, dizziness, and ataxia, and if severe, coma and respiratory depression.

Glucagon is used in beta blocker overdose. This would usually present with sinus bradycardia, hypotension, and coma.

Naloxone is used for opioid overdose. Characteristic signs of opioid poisoning are respiratory depression, pinpoint pupils, and coma.

Question:

A 3-month-old baby boy is brought to the GP by his mother. Earlier today, she noticed a bulge in his groin area. He is otherwise well and she reports no other concerns.

On examination, he appears generally well. A mass is visible, and palpable, in the left inguinal region. It does not transilluminate. The mass can be reduced.

Given the likely diagnosis, what is the most appropriate management plan?

A.Refer for ultrasound scan

B.Routine referral for surgery

C.Urgent referral for surgery

D.Re-review in 1 week, with appropriate safety-netting

E.Reassure and observe over the next 3 months

Answer:Urgent referral for surgery

Explanation:

Inguinal hernia in infants = Urgent surgery

Important for meLess important

The diagnosis here is that of an inguinal hernia, given the finding of a mass in the inguinal region. Although it can be reduced, and does not appear tender, an urgent referral for surgery should be made, given that the patient is in the first few months of his life - this cohort has the highest risk of strangulation and so hernia repair should take place as soon as possible. If signs of strangulation were present right now, the patient should be taken to emergency care for immediate review and intervention.

Referring for an ultrasound scan is inappropriate here - the diagnosis is clear and so the next step is to refer for urgent surgery, a scan would not change the management.

A routine referral is not correct - as discussed above, urgent referral is required. In an older child, over 1 year of age, the risk of strangulation is lower and surgery may be performed selectively.

Re-review in 1 week with safety-netting is therefore inadequate - referral is required now.

Reassuring and observing over the next 3 months is also inappropriate - this condition will not self-resolve. It requires urgent intervention.

Question:

A 35-year-old male is reviewed in the clinic for his long-standing skin condition (see below).

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A month ago the patient was started on a potent topical corticosteroid, to apply to the affected skin areas once daily. The patient reports good compliance however he has seen no improvement in his skin condition.

Accorded to NICE recommendations which medication should have also been started alongside the corticosteroid as 1st line treatment?

A.Start a coal tar preparation

B.Start a retinoid

C.Start a vitamin D analogue

D.Start an emollient

E.Start dithranol

Answer:Start a vitamin D analogue

Explanation:

The patient has all the hallmark features of plaque psoriasis, a chronic autoimmune condition associated with erythematous plaques covered by a silvery-white scale, mainly affecting the extensor surfaces such as the elbows and knees. NICE recommends a potent corticosteroid (for a maximum of 8 weeks) plus a vitamin D analogue, both once daily, for first-line treatment. This patient is on a potent corticosteroid, so a vitamin D analogue should be started too. Vitamin D analogues work by decreasing cell division and epidermal proliferation. The vitamin D analogue can be increased to twice daily if no improvement is seen after 8 weeks. At this point, second-line therapies can be considered.

Coal tar preparations can be used in psoriasis if first-line therapies are unsuccessful. The mechanism of action is not fully understood but they are believed to inhibit DNA synthesis, therefore, reducing cell turnover.

Retinoids are mainly used in the management of severe acne. Acne is due to the plugging of the hair follicles with oil and dead skin cells resulting in inflammatory nodules, mainly on the face and back. Retinoids reduce inflammation, reduce sebum production and normalise the follicle cell cycle which treats acne; they have a very limited role in psoriasis management.

Emollients are moisturisers mainly used in the management of conditions such as eczema. They play a limited role in plaque psoriasis and are used to reduce the scale and improve itching, however, this is only symptomatic management. Vitamin D analogues reduce cell turnover and therefore treat the underlying condition, which is why they are part of the first-line treatment for psoriasis.

Dithranol is a second-line treatment for psoriasis. It works by inhibiting DNA synthesis and therefore cell turnover. It can result in significant adverse effects in the form of burning and staining and therefore is reserved for patients who fail first-line therapy.

Question:

A 25-year-old woman presents with a generalised headache which woke her up from sleep this morning and blurred vision. These symptoms have generally improved throughout the day. She states she has often had similar headaches with nausea and vomiting for the last year or so and has never found over-the-counter medications helpful. She has no significant past medical history and takes no regular medication.

On examination, her observations are stable and her neurological examination is normal. Her BMI is 37 kg/m2.

What is the most likely diagnosis?

A.Acute closed angle glaucoma

B.Cerebral venous sinus thrombosis

C.Idiopathic intracranial hypertension

D.Migraine

E.Tension headache

Answer:Idiopathic intracranial hypertension

Explanation:

Obese, young female with headaches / blurred vision think idiopathic intracranial hypertension

Important for meLess important

In an obese patient with a generalised headache, blurred vision, and nausea/vomiting idiopathic intracranial hypertension is most likely. Symptoms may improve during the day as the patient is more upright and worsen when they bend down.

Acute angle glaucoma can present with a headache and blurred vision but would more often have unilateral eye pain as a key symptom with abnormal pupillary reflexes on neurological examination.

The presence of similar headaches over the last few makes cerebral venous sinus thrombosis less likely. In cerebral venous sinus thrombosis headache is the most common feature, whilst patients can also present with focal neurological features and more generalised neurological features such as seizures. Risk factors for developing clot formation are an important consideration in the history.

Migraines are a common cause of recurrent headaches, however, the generalised nature of the headache, positional element, and high BMI are more suggestive of idiopathic intracranial hypertension.

Tension headaches are another common cause of chronic or intermittent headaches. However, they would be less likely to cause blurred vision and are generally not positional dependent.

Question:

A 47-year-old man presents to the emergency department following a convulsive episode. This occurred at a friend’s house during a party where he was drinking heavily.

He has never had a seizure before, but has a past medical history of depression and is prescribed sertraline.

Urine toxicology shows a high level of cocaine and traces of cannabis.

What is the most likely cause of his seizure?

A.Cannabis toxicity

B.Alcohol withdrawal

C.Cocaine toxicity

D.Epilepsy

E.Hyponatraemia

Answer:Cocaine toxicity

Explanation:

Cocaine toxicity is known to cause seizures

Important for meLess important

Cocaine toxicity is known to cause seizures. This is the most likely cause listed here.

Cannabis toxicity is unlikely to be the cause here as the level detected is low and cocaine is the more likely causative agent.

Alcohol withdrawal can cause seizures, but this is more typical in patients who are chronically alcohol-dependent. The peak onset of this is 36 hours after the last alcohol intake; this patient is seen immediately after he has stopped drinking so would not yet be in withdrawal in any case.

The patient has not experienced any previous seizures and has no known diagnosis of epilepsy. Although this could potentially be a first epileptic seizure, cocaine is a far more likely cause in this instance. First epileptic seizures also usually occur in children and adults aged over 60.

There is nothing in the history to suggest hyponatraemia and cocaine is a far more likely cause in this instance.

Question:

A 36-year-old nulliparous woman is admitted in labour at 37 weeks gestation. On examination, the cervix is 7 cm dilated, the head is direct Occipito-Anterior, the foetal station is at -1 and the head is 2/5 ths palpable per abdomen. The cardiotocogram shows late decelerations and a foetal heart rate of 100 beats/min which continue for 15 minutes. How should this situation be managed?

A.Caesarian section

B.Ventouse delivery

C.Non-rotational forceps

D.Vaginal prostaglandin (PGE2)

E.Oxytocin infusion

Answer:Caesarian section

Explanation:

The cardiotocogram is very concerning (the late decelerations which are a worrying sign especially in the context of foetal bradycardia) and indicates that the baby needs to be delivered immediately. Instrumental delivery is not possible because the cervix is not fully dilated and the head of the baby is high. Oxytocin and vaginal prostaglandin are contraindicated due to foetal distress. Therefore the safest approach in this case is an emergency caesarian section.

Question:

A 11-year-old boy with severe lower abdominal pain is rushed to the Emergency Department by his mother. On examination, you note that the left testicle is swollen, higher than the right and it is exquisitely tender to touch. He is apyrexial. The cremasteric reflex is absent. He denies any urinary symptoms. The pain started approximately 120 minutes ago. What is the most appropriate next step in his management?

A.Urgent ultrasound testes

B.IV antibiotics

C.Emergency surgical exploration

D.Observation

E.Scrotal support

Answer:Emergency surgical exploration

Explanation:

This is a classical presentation of testicular torsion in a young boy - a urological emergency! It is really important to note that testicular torsion is a clinical diagnosis. Since the pain started just 2 hours ago, the most appropriate management is to proceed to emergency theatre for scrotal exploration. Failure to proceed to theatre within 4-6 hours will result in irreversible testicular necrosis; observation in this scenario is inappropriate.

An ultrasound may be appropriate for painless testicular swelling. IV antibiotics may be given in orchitis - this is unlikely in this scenario as the patient is apyrexial. Scrotal supports are sometimes employed post-operatively for scrotal operations.

Question:

An 8-year-old girl presents to the emergency department with a 3-day history of fever. She has no previous medical conditions, has no known allergies, is developing normally and her immunisations are up-to-date.

Her vital signs are as follows:

Resp. rate: 20

SpO2: 96%

Heart rate: 90

Cap. refill time: 1 sec

BP: 110/85 mmHg

AVPU: Alert

Temp.: 38.8ºC

On examination, she has a widespread maculopapular rash which is rough in texture. Her tongue is red, swollen and covered with white papillae and her tonsils are erythematous. Other system examinations are unremarkable.

Based on these findings, what is the most likely diagnosis?

A.Chicken pox

B.Kawasaki disease

C.Measles

D.Roseola infantum

E.Scarlet fever

Answer:Scarlet fever

Explanation:

Scarlet fever classically presents with a sore throat, fever, headache, bright red tongue and a coarse, red rash

Important for meLess important

Scarlet fever is the correct answer. This patient has the classic symptoms of scarlet fever: fever, sore throat, and descriptions of a 'strawberry' tongue (her tongue is red, swollen and covered with white papillae) and 'sandpaper' rash (she has a widespread maculopapular rash which is rough in texture).

Chicken pox is incorrect. This condition would typically cause a prodrome of fever and respiratory symptoms, followed by a global rash with vesicles on macules. Although this condition is associated with a sore throat and a fever, it does not account for the rough rash and strawberry tongue appearance.

Kawasaki disease is incorrect. To diagnose Kawasaki disease the patient must have a fever for 5 or more days and any 4 of the following 5 features:

non-exudative conjunctivitis

rash (polymorphous, non-vesicular)

oedema (or erythema of hands and feet)

lymphadenopathy (cervical and often unilateral)

mucosal involvement (erythema or fissures/crusting)

This patient does not meet the criteria for diagnosis of Kawasaki disease.

Measles is incorrect. This patient is up-to-date with her immunisations. Furthermore, measles would typically present with a rash which begins behind the ears and then spreads to the rest of the body. Patients may also have Koplik spots (white spots on the buccal mucosa) as a prodrome to the rash. This condition does not account for the rough rash and strawberry tongue appearance.

Roseola infantum is incorrect. This condition typically affects children under the age of 5 and is associated with the development of febrile seizures. Although this condition is associated with a sore throat and a fever, it does not account for the rough rash and strawberry tongue appearance.

Question:

A 15-year-old girl comes into the GP practice requesting contraception. You counsel her and together decide the implant would be the best method for her. You feel that she has the capacity to make this decision and consent to the insertion. However, in previous consultations, you have found her not to be capacitous for certain decisions and have involved her parents. Which of the following is required, according to the GMC, in order to continue with the insertion of the implant?

A.The patient's consent, and the consent of one of her parents.

B.The assistance of another healthcare professional during the consultation to give a second opinion that she has the capacity to make this decision, and the patient's consent.

C.Just the consent of one of her parents.

D.A second consultation a week later to give her time to think about her decision, and finally her consent.

E.Just the patient's consent.

Answer:Just the patient's consent.

Explanation:

Capacity is time and decision dependent. If in the past the patient has not had capacity to make a decision, but today for this decision you feel she has, the only consent you need is from her.

Encouraging a paediatric patient to involve their parents in the decision making process is wise, and is essential in cases involving contraception, but if the patient remains inconvincible, the treatment can still go ahead, as long as the patient has capacity to make the decision.

It would be good practice to involve another member of the health care team if you have doubts, and in many cases (involving children especially) no one would punish you for involving another member of the team, however again if you believe she has capacity to make this decision, all that is needed according to the GMC is her capacitous consent.

A time lag between consultations to give time to think about decisions is not required.

Reference: http:www.gmc-uk.org/guidance/ethicalguidance/childrenguidance29capacitytoconsent.asp

Question:

A 79-year-old woman presents with an itchy, blistering rash. Examination of her mouth is unremarkable.

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What is the most likely diagnosis?

A.Dermatitis herpetiformis

B.Drug reaction to lisinopril

C.Bullous pemphigoid

D.Pemphigus vulgaris

E.Epidermolysis bullosa

Answer:Bullous pemphigoid

Explanation:

Blisters/bullae

no mucosal involvement (in exams at least\*): bullous pemphigoid

mucosal involvement: pemphigus vulgaris

Important for meLess important

Question:

A 2-year-old boy presents with a harsh cough and pyrexia. His symptoms worsened overnight and on examination stridor is noted. Which one of the following interventions may improve his symptoms?

A.Codeine linctus

B.Humidified oxygen

C.Nebulised salbutamol

D.Oral erythromycin

E.Oral dexamethasone

Answer:Oral dexamethasone

Explanation:

Croup - A single dose of oral dexamethasone (0.15 mg/kg) is to be taken immediately regardless of severity

Important for meLess important

Question:

A 22-year-old woman presents to the GP with abnormalities with her vision. She describes a unilateral black shadow at the top of her right vision. She has also been experiencing flashing lights in spindly shapes, this came on suddenly a few hours ago. On examination, there is nothing of note when looking at the eye and the pupils are both equal and reactive. She has no other medical conditions or allergies.

Given this woman's presentation, what is the most likely diagnosis?

A.Ischaemic optic neuropathy

B.Vitreous haemorrhage

C.Acute optic neuritis

D.Retinal detachment

E.Central retinal vein occlusion

Answer:Retinal detachment

Explanation:

Peripheral curtain over vision + spider webs + flashing lights in vision think retinal detachment

Important for meLess important

This question is asking about a woman presenting with painless vision loss. There are many differentials for vision loss but this presentation best matches a retinal detachment. She has a typical curtain coming over her vision and describes spiderweb-like flashing lights around her vision. These are both typical features of retinal detachment. She, therefore, requires an urgent referral to eye casualty in an attempt to save her vision.

This presentation could almost fit a patient suffering from ischemic optic neuropathy. Patients typically describe an altitudinal visual field defect (where either the top half or bottom half of the vision is missing). However, they would not describe the flashing lights this patient has seen. You would also expect more risk factors such as atherosclerotic risk factors or a history of temporal arteritis.

In a vitreous haemorrhage, you would expect multiple dark spots in the ladies vision, as well as sudden vision loss. You would also expect some risk factors such as diabetes, underlying bleeding disorder or history of trauma.

Acute optic neuritis typically presents with the triad of a painful eye, vision loss and impaired colour vision. This does not fit the pattern of this ladies symptoms. It is also more typical that the symptoms come on over an hour or so and not immediately.

Central retinal vein occlusion typically occurs in older patients, with symptoms such as unilateral blurred vision, with an altitudinal visual defect. You would not note spider web-like flashes this patient does not have blurred vision or the risk factors.

Question:

A 62-year-old man presents with headaches. On examination he is found to have widespread bilateral expiratory wheeze on auscultation, facial plethora, heart rate 90 bpm, blood pressure 110/60 mmHg and SpO2 88%. He has a 60 pack year smoking history. He is currently treated with bendroflumethiazide and amlodipine for hypertension. Blood results show:

Haematocrit 0.58 (normal range 0.41-0.50)

RBC 8.8 \* 1012/l (range 4-6 \* 1012/l )

What is the most likely cause of the polycythaemia?

A.Polycythaemia rubra vera

B.Dehydration due to diuretic use

C.Erythropoietin (EPO) producing tumour

D.Chronic myeloid leukaemia

E.COPD

Answer:COPD

Explanation:

It is important to remember that most abnormal blood results are reactive. It is first essential to differentiate between a true and relative polycythaemia. A true polycythaemia can be primary (e.g. myeloproliferative disorder) or secondary (reactive). Dehydration and diuretics can cause a relative polycythaemia (pseudopolycythaemia) where there is relatively low plasma volume to red cell mass ratio. Red cell mass and plasma volume studies are helpful to demonstrate a relative polycythaemia.

The patient in this example has risk factors for secondary polycythaemia including COPD and smoking. Impaired oxygen exchange in the lungs can result in a low PaO2 which results in stimulation of EPO release from the kidneys. EPO stimulates erythropoiesis and increases red cell mass, thereby resulting in polycythaemia. The low SpO2 is highly suggestive of a hypoxic driven polycythaemia. Therefore the most likely answer is COPD.

Question:

You are asked for advice from a local GP. He has received the following blood results for one of his patients, a 50-year-old non-smoker.

Na+ 130 mmol/l

K+ 4.2 mmol/l

Bicarbonate 23 mmol/l

Urea 4.8 mmol/l

Creatinine 71 µmol/l

Which one of his medications is most likely to explain this result?

A.Fluoxetine

B.Pioglitazone

C.Methotrexate

D.Ibuprofen

E.Nicorandil

Answer:Fluoxetine

Explanation:

SIADH - drug causes: carbamazepine, sulfonylureas, SSRIs, tricyclics

Important for meLess important

In section 4.3 of the BNF specific mention is made of the risks of hyponatraemia developing in patients who take antidepressants, especially SSRIs such as fluoxetine. The exact mechanism causing hyponatraemia is not fully understood but it is thought to be due to the syndrome of inappropriate ADH section.

Question:

A 34-year-old female with a history of depression is reviewed. She is currently taking St John's Wort which she bought from the local health food shop and a combined oral contraceptive pill. What is the most likely effect of taking both medications concurrently?

A.Worsening of depressive symptoms

B.Increased risk of severe skin reactions

C.Increased risk of serotonin syndrome

D.Increased risk of venous thromboembolism

E.Reduced effectiveness of combined oral contraceptive pill

Answer:Reduced effectiveness of combined oral contraceptive pill

Explanation:

Question:

A 68-year-old man presents to you with intermittent left-sided crushing chest pain which is brought on by walking his dog on an incline. The pain settles within a couple of minutes of rest and glyceryl trinitrate (GTN) spray. The pain is not associated with shortness of breath or lightheadedness.

He first presented to you with these same symptoms six months ago, at this time you gave him lifestyle advice and prescribed bisoprolol, aspirin, GTN and atorvastatin. He has noted only minimal improvement of his symptoms over the last six months.

On examination he is comfortable at rest, with blood pressure 124/73 mmHg, heart rate 63 beats/minute, oxygen saturation 99%, respiratory rate 18 breaths/minute and he is afebrile. His chest is clear, and heart sounds are normal. ECG shows normal sinus rhythm, with no ischaemic changes. He is also awaiting a CT coronary angiography.

What would be the next stage of treatment for this patient?

A.Add isosorbide mononitrate

B.Add nicorandil

C.Add amlodipine

D.Add verapamil

E.Switch bisoprolol to verapamil

Answer:Add amlodipine

Explanation:

If angina is not controlled with a beta-blocker, a longer-acting dihydropyridine calcium channel blocker should be added

Important for meLess important

If monotherapy with bisoprolol has not been successful, the next step in treating stable angina is to add a long-acting dihydropyridine calcium-channel blocker, such as amlodipine.

Bisoprolol should not be given concurrently with a non-dihydropyridine calcium-channel blocker, like verapamil, as both reduce conduction at the AV node and this could lead to complete heart block.

A long-acting nitrate or nicorandil might be considered if an additional calcium channel blocker was not tolerated. But this would not be a second-line treatment plan.

As a side note, the maximum dose of bisoprolol within 24 hours is typically 10mg, and although higher doses are sometimes prescribed by cardiologists, this would not be the most appropriate next step, especially considering his low-normal heart rate of 63 beats per minute.

Question:

A 43-year-old man with a history of chronic back pain presents to his GP complaining of pain in his left eye and photophobia. On examination the pupil is small, oval shaped and associated with ciliary congestion. What is the most likely diagnosis?

A.Anterior uveitis

B.Conjunctivitis

C.Scleritis

D.Meningitis

E.Acute angle closure glaucoma

Answer:Anterior uveitis

Explanation:

Red eye - glaucoma or uveitis?

glaucoma: severe pain, haloes, 'semi-dilated' pupil

uveitis: small, fixed oval pupil, ciliary flush

Important for meLess important

His chronic back pain may be HLA-B27 related, which is associated with anterior uveitis

Question:

A baby is born via a category one caesarian section. The doctors are concerned that there is very little respiratory effort and begin to assess the child.

When should the APGAR score be assessed?

A.1 and 10 minutes of age

B.1 and 15 minutes of age

C.1 and 5 minutes of age

D.10 and 30 minutes of age

E.2 and 10 minutes of age

Answer:1 and 5 minutes of age

Explanation:

NICE recommend that APGAR scores are routinely assessed at 1 and 5 minutes of age

Important for meLess important

The APGAR score is used to assess the health of a newborn baby. APGAR scores should be assessed at 1 and 5 minutes of age.

The APGAR score includes an assessment of the pulse, respiratory effort, colour, muscle tone and reflex irritability.

A higher score indicates that the baby is in good health. A score of 0-3 is very low, 4-6 is moderately low and 7-10 suggests the baby is in a good state. If the score is <5 at 5 minutes, APGAR scores should be repeated at 10, 15 and 30 minutes and umbilical cord blood gas sampling should be considered.

5 minutes of age is correct.

None of the other answers is consistent with when APGAR scores should be assessed.

Question:

An 11-year-old boy is brought to the emergency department by his parents with shortness of breath.

On examination, there is pitting oedema to the mid shins, shifting dullness on abdominal examination, and auscultation of the lungs reveals bilateral lower zone crackles. Oxygen saturations are 91% on room air, heart rate 102 bpm and blood pressure 156/101 mmHg. An ECG shows sinus tachycardia. Bloods reveal the following:

Hb 146 g/L Male: (135-180)

Platelets 243\* 109/L (150 - 400)

WBC 6.5 \* 109/L (4.0 - 11.0)

ALP 76 u/L (30 - 100)

ALT 36 u/L (3 - 40)

Albumin 22 g/L (35 - 50)

Given the likely diagnosis, what is the most appropriate management?

A.Cyclophosphamide

B.1.5L fluid restrict

C.Furosemide

D.Human albumin solution

E.Prednisolone

Answer:Prednisolone

Explanation:

Minimal change glomerulonephritis - prednisolone

Important for meLess important

Prednisolone is the correct answer. This presentation is most consistent with nephrotic syndrome. The commonest cause of nephrotic syndrome in children is minimal change glomerulonephritis. This is due to the glomerular becoming leaky, allowing proteins (including albumin) to pass into the urine, causing proteinuria. In this boy, the albumin level is low, which should raise suspicion of nephrotic syndrome. As a result, the oncotic plasma pressure is reduced in the vessels, which generates an imbalance of Starling’s forces across capillary walls, leading to interstitial leakage of fluid and decreased efficient volume. In this boy, fluid can be seen to be pooling in areas such as the lungs (pulmonary oedema - bilateral lower zone crackles), ankles (pedal oedema) and peritoneal cavity (ascites - shifting dullness on abdominal examination), which implies the hypoalbuminaemia seen has caused a reduced plasma oncotic pressure. In children, nephrotic syndrome is very responsive to steroid treatment, so prednisolone is the first-line management for this scenario. Prednisolone successfully resolves proteinuria at the glomerular membrane making it a successful treatment.

Cyclophosphamide is incorrect. If steroid treatment (prednisone) was unable to treat the nephrotic syndrome occurring in this boy, cyclophosphamide could be trialled. However, it is not the first line of management for nephrotic syndrome so is inappropriate at this stage.

1.5L fluid restrict is incorrect. Whilst this will reduce the overall fluid volume, it does not address the underlying problem or cause of the third spacing of fluid. Therefore, the fluid will continue to leak into the interstitial spaces as the kidneys will not retain proteins as the nephrotic syndrome (minimal change glomerulonephritis) has not been treated.

Furosemide is incorrect. Whilst furosemide will help offload the inappropriately placed fluid, as protein is still leaving via the urine, the intravascular volume will become more depleted if furosemide is given. If the intravascular volume is further dropped, the patient's saturation will further decrease. Therefore, furosemide is not used in the management of nephrotic syndrome. Since furosemide is a sodium-potassium-chloride inhibitor, this will further reduce the plasma's osmotic concentration, meaning more fluid pools in third spaces as the oncotic pressure is decreased even more. Oxygen can be given to treat the low saturations, and steroid treatment should be started.

Human albumin solution is incorrect. The albumin itself does not need to be replaced; once the glomerular aspect of this minimal change glomerulonephritis is treated with steroids, albumin will stop leaking into the urine, and the plasma level will begin to increase back to baseline.

Question:

A 33-year-old female is seen in the first seizure clinic after suffering a focal seizure 8 days ago. A brain MRI and electroencephalogram (EEG) are performed, both of which return no abnormal findings. The patient asks if she can still drive after suffering this first seizure.

What is the most appropriate response to this patient's question?

A.She cannot drive for one month

B.She cannot drive for three months

C.She cannot drive for six months

D.She cannot drive for twelve months

E.She may continue to drive, but must stop if she has another seizure

Answer:She cannot drive for six months

Explanation:

Patients cannot drive for 6 months following a first unprovoked or isolated seizure if brain imaging and EEG normal

Important for meLess important

This patient is presenting with a first seizure and has no relevant structural abnormalities on neuroimaging and a normal EEG. According to DVLA guidelines, she must abstain from driving for six months.

She cannot drive for one month is incorrect as this is how long patients must abstain from driving after suffering a stroke or single transient ischaemic attack (TIA).

She cannot drive for three months is incorrect as this is how long patients must abstain from driving after suffering multiple TIAs.

She cannot drive for twelve months is incorrect as this is how long patients must abstain from driving after suffering a first seizure with either an associated relevant structural brain abnormalities on neuroimaging or definite epileptiform activity on EEG.

She may continue to drive, but must stop if she has another seizure is incorrect. This advice would be more appropriate to give to a patient with diagnosed epilepsy who holds a category 1 driving license and has been seizure free for at least one year.

Question:

You are on a psychiatric liaison rotation, and have been asked to talk to an admitted patient with known bipolar disorder. Upon trying to take a history from him, you struggle to follow his stream of consciousness, as he keeps saying things like: 'I went home to feed my cat -- so fat I am, I really need to lose weight -- I hate the postman, he always speeds in his red van, Dan is my best friend at work -'. You suspect that his flight of ideas is linked only by rhyme or similar sounding words.

What is the medical term for this psychiatric symptom?

A.Mania

B.Aphasic speech

C.Clang associations

D.Echolalia

E.Neologism

Answer:Clang associations

Explanation:

Clang associations - ideas related only by rhyme or being similar sounding

Important for meLess important

This patient is demonstrating clang associations - ideas that are linked by rhyme or similarity of word sounds alone. This is sometimes seen in schizophrenia or bipolar disorder.

Mania is a not an isolated symptom, and, by definition, must have elements of psychosis, which this patient is not currently displaying.

Aphasic speech is when the patient loses the ability to form language.

Echolalia is the patient repeating words or phrases of the individual they are talking to.

Neologism is when the patient creates new words or uses a recognised word incorrectly.

Question:

A 67-year-old male presents to the emergency department with a continuous cough that he has been having for a week. The cough is not productive. On examination, his heart rate is 82/min, respiratory rate 18/min, blood pressure 137/94 mmHg, and temperature 38.2 ºC. Examination of the chest is normal. A COVID-19 test is negative and a chest x-ray does not show any abnormalities.

Blood tests show the following:

Hb 147 g/L Male: (135-180) Female: (115 - 160)

Platelets 340 \* 109/L (150 - 400)

WBC 10.2 \* 109/L (4.0 - 11.0)

Urea 5.2 mmol/L (2.0 - 7.0)

Creatinine 84 µmol/L (55 - 120)

CRP 178 mg/L (< 5)

Which one of the following is the most appropriate management option?

A.Administer immediate intravenous fluids and analgesia

B.Admit for intravenous doxycycline

C.Discharge with analgesia

D.Offer a delayed prescription of doxycycline

E.Prescribe doxycycline for five days

Answer:Prescribe doxycycline for five days

Explanation:

The CRP level can be used to guide whether patients with acute bronchitis require antibiotics

Important for meLess important

The correct answer is to offer to prescribe doxycycline for five days. This patient is presenting with the classical signs and symptoms of acute bronchitis. The condition presents with cough, which can be productive or not, and occasionally sore throat, rhinorrhoea, pyrexia and wheeze. Additionally, the chest x-ray is normal, further excluding a diagnosis of pneumonia. The management is usually supportive, but if available it can be guided by the CPR levels. If the patient has a CRP of 20-100mg/L they should be offered a delayed prescription or if they have a CRP >100mg/L you should offer antibiotics immediately. The antibiotic of choice is usually doxycycline. In this case, the CRP is 178, making the option to prescribe doxycycline for five days correct.

Administer immediate intravenous fluids and analgesia is incorrect, as this patient is currently stable with only slightly abnormal vitals and blood results, except for the CRP. There is no reason to keep him in the hospital.

Admit for intravenous doxycycline is incorrect as the patient is systematically well.

Discharge with analgesia is incorrect, as the levels of CRP have been measured and indicate that he needs a prescription.

Offer a delayed prescription of doxycycline is incorrect. The guidelines suggest that we should offer delayed prescriptions if the CRP is 20-100 mg/L. His CRP is 178 mg/L and he has a fever, making an immediate prescription needed.

Question:

A 27-year-old woman sees her GP regarding a right breast lump. She first noticed the lump two months ago; it is persistent and doesn't appear to be increasing in size. On examination, you note a 2cm smooth, mobile lump in the infero-lateral quadrant, with no skin or nipple changes. She has no lumps in her axilla and denies any family history of breast cancer.

What is the most appropriate management?

A.Arrange breast ultrasound

B.Arrange mammogram

C.Review in one month

D.Routine breast clinic referral

E.Urgent breast clinic referral

Answer:Routine breast clinic referral

Explanation:

A woman < 30 years of age presenting with an unexplained breast lump with or without pain does not meet 2WW criteria but can be considered for a non-urgent referral

Important for meLess important

The age, history, and examination findings make a fibroadenoma the most likely diagnosis. Fibroadenomas are common benign breast lumps, usually presenting in younger women. They are typically firm, smooth, highly mobile lumps, often described as a 'breast mouse' due to their tendency to quickly move away from the examiner's hand. As with any unexplained breast lump, this patient should be referred to breast clinic but, given the low likelihood of cancer, this patient can be referred routinely (CKS suggests considering a routine breast referral for women under 30).

Arranging investigations such as a mammogram or ultrasound is unnecessary as these would be done by the breast clinic.

Reviewing in one month is unnecessary as the lump has persisted for two months and there is nothing to indicate it is cyclical.

An urgent breast clinic referral is not needed given her age and the low likelihood of breast cancer in this patient.

NICE CKS recommends a 2-week-wait referral for those aged 30 or over with an unexplained breast lump, or over 50 years old with unilateral nipple changes. The guidance recommends consideration of 2-week-wait referral for people with skin changes suggestive of breast cancer, or those over 30 years old with an unexplained lump in the axilla.

Question:

A 65-year old gentleman with a background of osteoarthritis and previous cervical laminectomy for degenerative cervical myelopathy presents with a 2-month history of worsening gait instability and urinary urgency. Which of the following is the most likely explanation for his symptoms?

A.Transverse myelitis

B.Recurrent degenerative cervical myelopathy

C.Multiple sclerosis

D.Cauda equina syndrome

E.Spinal metastases

Answer:Recurrent degenerative cervical myelopathy

Explanation:

Postoperatively, patients with cervical myelopathy require ongoing follow-up as pathology can 'recur' at adjacent spinal levels, which were not treated by the initial decompressive surgery. This is called adjacent segment disease. Furthermore, surgery can change spinal dynamics increasing the likelihood of other levels being affected. Patients sometimes develop mal-alignment of the spine, including kyphosis and spondylolisthesis, and this can also affect the spinal cord. All patients with recurrent symptoms should be evaluated urgently by specialist spinal services.

Transverse myelitis usually presents more acutely than in this case, with a sensory level and upper motor neuron signs below the level affected. It can occur in patients with multiple sclerosis or Devics disease (neuromyelitis optica). These patients tend to also have features such as optic neuritis.

Cauda equina syndrome results from compression of the cauda equina and classically includes leg weakness, saddle anaesthesia and sphincter disturbance. This gentlemans history is much more likely to be in keeping with recurrent cervical myelopathy, given his background and given the subacute presentation

Spinal metastases are uncommon, especially in a patient without a known primary. Given previous DCM, recurrence is more likely.

Question:

A 42-year-old man presents to his GP with back pain for 3 weeks. He has not injured his back recently and the pain started when he lifted a heavy box. His pain is worst in the morning for a couple of hours, with some associated stiffness. There is no pain anywhere else in his joints. He does not have any neurological deficits and his bladder function is normal.

He has a past medical history of myasthenia gravis treated with prednisolone 15mg every other day.

The GP ordered an initial x-ray of his lumbosacral spine as seen below.

© Image used on license from Radiopaedia

What is the most likely diagnosis?

A.Ankylosing spondylitis

B.L5 disc prolapse

C.L5 osteoporotic fracture

D.Paget's disease

E.Rheumatoid arthritis

Answer:Ankylosing spondylitis

Explanation:

This image shows an x-ray of the lumbar spine and sacroiliac joints of a man with ankylosing spondylitis. The inflammatory condition has caused inflammation around the sacroiliac joints (similar to osteoarthritis with loss of joint space) and squaring of the vertebrae. One can argue there is early ossification of the interspinous ligament connecting the spines of the L4 and L5 vertebrae. Initial management involves NSAIDs and physiotherapy. However, if it is not controlled steroid injections or even surgery might be needed.

Ankylosing spondylitis is the correct answer. The image demonstrates inflammatory changes including sacroiliitis (inflammation of the sacroiliac joints bilaterally seen here as reduced joint space) and squaring of the vertebrae. These are typical features of ankylosing spondylitis. The diagnosis is difficult to make out from the clinical history as there are several red herrings. The typical history involves a young man that develops chronic severe back pain worse in the morning and which improves with exercise, with associated stiffness.

L5 disc prolapse is incorrect. This is differential as the patient is young (discs still have high water content) and the pain came on suddenly after lifting a box. However, there is no pain radiating down the sciatic distribution and no neurological deficits and the x-ray is not the modality of choice for this pathology. If this was suspected to be an L5 prolapse an MRI scan should have been ordered.

L5 osteoporotic fracture is incorrect. This is an important differential to rule out. The patient is receiving more than 7.5mg for more than 3 months of prednisolone which can induce osteoporosis in his bones. Given the history, it is important to rule out any osteoporotic fractures. The x-ray does not show any abnormalities or incongruities of the bones suggestive of this diagnosis.

Paget's disease is incorrect. This is a condition characterised by abnormally increased bone turnover, classically seen in elderly patients with bone pain. It is not unlikely to see it at this age and it is also known to affect the lumbar spine; however, there are no signs in the x-ray suggestive of it. One would expect osteoporosis circumscripta (various 'spots' of lower density on the bone) and also areas of increased bone density (cotton wool appearance), which are not present here. Blood tests would also be required to assess for a raised alkaline phosphatase (ALP).

Rheumatoid arthritis is incorrect. This is an inflammatory condition that usually affects the joints of the limbs. Due to its inflammatory nature, it is known to cause inflammatory changes in the sacroiliac joint (as seen in ankylosing spondylitis), although this is rare. There are no systemic features and no blood tests suggesting rheumatoid arthritis.

Question:

A 72-year-old woman presents to the emergency department feeling generally unwell. While being assessed she complains that she feels very cold and clammy. Her observations are:

Heart rate 48 beats per minute

Respiratory rate 18 per minute

Blood pressure 98/56 mmHg

Saturations 95% on room air

Temperature 36.7 ºC

Her ECG shows bradycardia with Mobitz type II atrioventricular (AV) block. She has presented with similar symptoms twice in the past and says that she was allergic to the first medication they tried giving her.

What is the most appropriate treatment?

A.Adenosine

B.Adrenaline infusion

C.Aminophylline

D.Amiodarone

E.Aspirin and clopidogrel

Answer:Adrenaline infusion

Explanation:

Isoprenaline/adrenaline infusion is an alternative treatment to atropine/transcutaneous pacing for a symptomatic bradycardia

Important for meLess important

This patient has a symptomatic bradycardia with adverse signs and so needs treatment. The most appropriate treatment out of the options here would be an adrenaline infusion. Isoprenaline is an inotrope that is structurally very similar to adrenaline and may be used as an alternative in some hospitals. It is not given as an option here but the first-line treatment would generally be atropine. From the patient history, they are likely allergic to atropine and so an adrenaline infusion would be the next medical treatment to consider. This would be the most likely treatment while permanent pacing was arranged for the patient.

Adenosine is used in the treatment of supraventricular tachycardias, not bradycardias. Therefore it would be inappropriate in this case.

Aminophylline is one of the alternative drugs that can be used to treat symptomatic bradycardias. However, it is generally used in acute inferior wall myocardial infarctions and cardiac transplantation.

Amiodarone is also used to treat tachycardias and so would also be inappropriate to give in this case.

Aspirin and clopidogrel would be the initial treatment if a myocardial infarction was suspected. However, the patient's ECG does not show any signs of ST-elevation. While it would be sensible to check a troponin in this patient the heart block shown on the ECG gives a clear cause for the symptoms that needs treating.

Question:

A 25-year-old woman is reviewed by her GP after presenting feeling tired all the time. She describes worsening lethargy and generalised muscle weakness for 4 months. She is not overweight, is a non-smoker, and is normally fit and well with no relevant family history.

A blood pressure reading of 165/95 mmHg is obtained. Physical examination is normal with no demonstrable muscle weakness. Her blood sugar is recorded as 4.8mmol/L. Repeat blood pressure readings are persistently high. She has home blood pressure monitoring arranged and results are on average, 155/90mmHg.

You arrange an electrocardiograph (ECG) and blood tests before referral to secondary care regarding hypertension. These are unremarkable aside from potassium of 3.4 mmol/L.

A diagnosis of primary hyperaldosteronism is suspected.

What is the most suitable first-line investigation in this case?

A.CT abdomen

B.Dexamethasone suppression test

C.Aldosterone/renin ratio

D.Short synacthen test

E.Urine catecholamines

Answer:Aldosterone/renin ratio

Explanation:

A plasma aldosterone/renin ratio is the first-line investigation in suspected primary hyperaldosteronism

Important for meLess important

The correct answer is a plasma aldosterone/renin ratio.

A CT abdomen may identify an adrenal adenoma but would not be the first-line investigation.

A dexamethasone suppression test is used to identify the way in which cortisol levels respond after an individual receives an injection of dexamethasone. It is most commonly used in the diagnosis of Cushing's syndrome.

Hypoadrenalism e.g. from Addison's disease can be identified by a short synacthen test.

Urine catecholamines are used in the diagnosis of a phaeochromocytoma.

Question:

A 62-year-old man presents to clinic with a four month history of worsening lower urinary tract symptoms and nocturnal enuresis. On examination he has a painless distended bladder. You perform a digital rectal examination which shows he has a smoothly enlarged prostate. Bladder scan shows 1.2L residual. Ultrasound kidney, ureter, bladder (US KUB) shows bilateral hydronephrosis. His blood results are shown below:

Na+ 135 mmol/L (135 - 145)

K+ 4.8 mmol/L (3.5 - 5.0)

Bicarbonate 27 mmol/L (22 - 29)

Urea 7 mmol/L (2.0 - 7.0)

Creatinine 290 µmol/L (55 - 120)

What is the most likely diagnosis?

A.Acute urinary retention

B.Chronic high pressure urinary retention

C.Chronic low pressure urinary retention

D.Detrusor instability

E.Prostate cancer

Answer:Chronic high pressure urinary retention

Explanation:

Chronic urinary retention is classed as high pressure urinary retention if renal function is impaired or if there is hydronephrosis

Important for meLess important

A painless distended bladder, with >1L urine in the bladder is in keeping with chronic urinary retention. This is typically caused by bladder outflow obstruction. In this case the impaired renal function (creatinine 290) and bilateral hydronephrosis seen on US KUB suggest it is high pressure chronic retention.

Low pressure chronic urinary retention presents with a painless distended bladder, but no associated hydronephrosis or renal impairment.

Acute urinary retention typically does not cause a painless distended bladder. The clinical features of acute urinary retention include supra-pubic tenderness, with a palpable bladder. Typically <1L is drained on catheterisation. As this patient has a painless distended bladder and 1.2L urine in his bladder, acute urinary retention is unlikely.

Prostate cancer can cause urinary retention. However, in this case, the digital rectal examination revealed a smoothly enlarged prostate. This is in keeping with benign prostatic hypertrophy. If the prostate was craggy and asymmetrically enlarged, prostate cancer would be a more likely answer.

Detrusor instability presents with urinary frequency, and urge incontinence. It is usually diagnosed with urodynamics. However, it does not usually cause a painless distended bladder, nor drop in renal function, nor bilateral hydronephrosis, making it unlikely to be the correct answer.

Question:

A 54-year-old long-stay medical patient with anorexia nervosa mentions that she has noticed her stools today are black and have a strong odour to them. Her most recent stool contained a large amount of fresh red blood.

Upon later reviewing her blood results, you notice some abnormalities.

Hb 89 g/L Male: (135-180)

Female: (115 - 160)

Platelets 12 \* 109/L (150 - 400)

WBC 3.8 \* 109/L (4.0 - 11.0)

HIT antibodies Negative

Which of the following, in combination with her platelet count, is an indication for this patient to have a platelet transfusion?

A.Her stools

B.Negative HIT antibodies

C.White blood cells 3.8 x 109/L

D.BMI 12.9

E.Haemoglobin 89g/L

Answer:Her stools

Explanation:

Platelet transfusion threshold: 10 x 109 for patients not bleeding or having an invasive procedure- except where CI or alternative treatments for their condition

Important for meLess important

Despite her platelet count only being 12 x 109/L, this alone is not an indication for a platelet transfusion in the absence of bleeding. However, she has melena, which represents digested blood, likely from an upper gastrointestinal bleed. Since she is actively bleeding, the platelet transfusion threshold is 30 x 109/L, and her stool is therefore the correct answer.

Negative HIT antibodies indicate that she does not have heparin-induced thrombocytopenia, which would be a contraindication to platelet transfusion. This in itself is not an indication for platelet transfusion.

Neutropenia, which is common in patients with anorexia nervosa, is not an indication for platelet transfusion.

Her BMI, while it will have an impact on her physiological reserve, is not an indication for platelet transfusion and does not impact the platelet transfusion threshold.

Anaemia is also not an indication for a platelet transfusion, and a Hb of 89g/L is not low enough to warrant a blood transfusion either in this scenario.

Question:

A 23-year-old male with known inflammatory bowel disease presents to the emergency department feeling unwell with 7 bowel motions each day, associated with jelly-like substance and blood. He feels clammy and looks pale. Observations show heart rate 101 beats/min, blood pressure 119/89mmHg, temperature of 38.7ºC, respiratory rate of 18/min with 98% oxygen saturation in room air. While the blood tests are processing, the patient's records are reviewed in which there is a histopathology report with biopsy findings showing diffuse crypt changes, chronic inflammation, and disruption of crypt architecture in the rectum and sigmoid colon.

What is the most likely diagnosis for this patient?

A.Mild flare-up of Crohn's disease

B.Moderate flare-up of Crohn's disease

C.Moderate flare-up of ulcerative colitis

D.Severe flare-up of Crohn's disease

E.Severe flare-up of ulcerative colitis

Answer:Severe flare-up of ulcerative colitis

Explanation:

Fever is an indicator of a severe UC flare-up

Important for meLess important

This patient is experiencing a flare-up of inflammatory bowel disease (IBD) which has strongly suggestive features of ulcerative colitis:

Histopathological features of diffuse crypt changes, ongoing inflammation, and chronic inflammation.

Bloody diarrhoea with mucous in stool.

A severe ulcerative colitis flare-up is associated with passing >6 stools per day containing blood. The patient will also have systemic disturbance (such as fever). This patient requires hospitalisation for intravenous medical management.

In contrast, moderate ulcerative colitis flare-ups do not typically show systemic features of tachycardia (heart rate > 100 beats/min, fever) or passage of more than 6 stools per day. These patients may be managed in the outpatient setting or may require in-hospital care.

A mild ulcerative colitis flare is usually managed in the community. Patients pass < 4 stools per day and do not have any systemic features, they will have minimal or no pain and they will be able to continue with activities of daily living to the best of their ability.

The patient's histopathology results are not in keeping with Crohn's disease - this would typically present with non-diffuse crypt distortion, granulomas, and anatomical discontinuity (ie 'healthy' areas amongst diseased areas).

Crohn's disease flares are often assessed with the CD activity index scoring system. This assigns severity based on these criteria:

Mild Ambulatory, tolerating oral fluid/food, no dehydration, no signs of pain

Moderate Failing first-line treatment, low-grade fever, nausea and vomiting, weight loss, anaemia

Severe Failing advanced treatment, shocked, obstruction, peritonitis, cachexia

Question:

A 28-year-old female presents to the gastroenterology clinic with a history of irritable bowel symptoms and weight loss. She undergoes upper endoscopy and colonoscopy. A terminal ileal biopsy shows transmural inflammation, non-caseating granulomas and skip-lesions. As a result, she is started on a short course of steroids to induce remission of her underlying condition.

Which medication would be most appropriate to maintain remission?

A.Ciclosporin

B.Low dose prednisone

C.Mercaptopurine

D.Mesalazine

E.Tacrolimus

Answer:Mercaptopurine

Explanation:

Azathioprine or mercaptopurine is used first-line to maintain remission in patients with Crohn's

Important for meLess important

This patient has symptoms consistent with an inflammatory bowel disease - she is young with new bowel symptoms and weight loss. The findings on biopsy of transmural inflammation, non-caseating granulomas and skip-lesions make Crohn's the diagnosis. The terminal ileum is a very common site of disease in Crohn's patients, so this is another clue. Appropriate first-line management for Crohn's disease would be mercaptopurine or azathioprine to maintain remission. Therefore mercaptopurine is the correct answer.

Prednisone may be used initially to control symptoms and help to induce remission, however alternate agents should be used to maintain remission if at all possible.

Mesalazine is the first-line treatment for ulcerative colitis rather than for Crohn's, so is incorrect for this scenario. Findings on biopsy for ulcerative colitis would include cryptitis (with possible crypt abscesses) and pseudopolyps. Ulcerative colitis does not cause transmural inflammation and only affects the colon. The disease starts at the distal end of the colon and progresses proximally. It would typically present with bloody diarrhoea. Since Crohn's can affect any part of the GI tract, it can present in a variety of ways.

Ciclosporin is a calcineurin inhibitor used as second-line management in many autoimmune diseases, including psoriasis and Crohn's. It is not appropriate as a first-line treatment for Crohn's.

Tacrolimus is an immunosuppressant drug commonly used after solid organ transplant rather than in Crohn's disease.

Question:

A 16-year-old male presents to emergency department after a fall on an outstretched hand. He reports tenderness at the base of the thumb. It is tender when pressing the base of the anatomical snuffbox. X-ray reveals a non-displaced fracture of the scaphoid waist.

How should this patient be managed?

A.Conservative treatment with regular ice packs and NSAIDs

B.External fixation

C.Open reduction internal fixation (ORIF)

D.Cast for 6-8 weeks

E.Splint and bandage for 7-10 days

Answer:Cast for 6-8 weeks

Explanation:

Undisplaced fractures of the scaphoid waist are typically managed with a cast for 6-8 weeks

Important for meLess important

Scaphoid fractures are common after falls on outstretched hands (FOOSH). X-ray will not typically show a non-displaced scaphoid fracture for the first 7 days. Cast for 6-8 weeks is the correct answer as this attains the best result for the patient.

External fixation, and open reduction internal fixation (ORIF), are two surgical approaches to fractures, and are incorrect answers because they are inappropriate for a non-displaced fracture of the small carpal bones. EF and ORIF are used for major compound fractures, or fractures that can't be reduced and casted without an operation.

Splinting and bandaging is the incorrect answer because this will not stabilise the joint well enough to heal, risking a non-union of the fracture. Conservative care with ice packs and

NSAIDs is the incorrect answer because this will not provide appropriate stabilisation for the bone to repair, and are not appropriate.

Question:

Which one of the following prescriptions is contraindicated in pregnancy?

A.Methyldopa for hypertension

B.Topical clindamycin for bacterial vaginosis

C.Doxycycline for malarial prophylaxis

D.Metoclopramide for vomiting

E.Prednisolone for an asthma exacerbation

Answer:Doxycycline for malarial prophylaxis

Explanation:

All tetracyclines should be avoided in pregnancy.

It should be noted that the above prescriptions are not necessarily the recommended first-line treatments

Question:

An 11-month-old infant has become lifeless in the waiting room at the GP for an unknown reason. Paediatric basic life support is initiated and chest compressions are provided.

What method of chest compressions is correct to use in this situation?

A.1 hand compressing the lower half of the sternum

B.1 hand compressing the upper half of the sternum

C.2 hands compressing the lower half of the sternum

D.One-thumb encircling technique

E.Two-thumb encircling technique

Answer:Two-thumb encircling technique

Explanation:

Paediatric BLS: in infants use a two-thumb encircling technique for chest compression

Important for meLess important

The correct answer is the two-thumb encircling technique and should be given to infants aged younger than one.

1 hand compressing the lower half of the sternum is the incorrect answer as this should be used in basic life support for a child aged older than 1 year.

2 hands compressing the upper half of the sternum is incorrect in this situation as this is the method that should be used in adult life support.

The third option of 2 hands compressing the lower half of the sternum is not a recognised method of providing chest compressing in any circumstance.

One-thumb encircling technique is not a recognised technique to provide chest compressions.

Question:

A 65-year-old lady presents to her GP with a 3 month history of weight loss and feeling generally unwell. She has also noticed the skin under her armpits has become darker and slightly thicker. What is the most common malignancy associated with acanthosis nigricans?

A.Gastrointestinal adenocarcinoma

B.Phaeochromocytoma

C.Bile duct cancer

D.Endometrial carcinoma

E.Non-Hodgkin's lymphoma

Answer:Gastrointestinal adenocarcinoma

Explanation:

The most common malignancy associated with acanthosis nigricans

is gastrointestinal adenocarcinoma

Important for meLess important

While all of these malignancies may be associated with acanthosis nigricans, gastrointestinal adenocarcinoma is the most common.

Question:

A 28-year-old lady who is 9 weeks pregnant comes to see you for review of booking bloods. Her haemoglobin is 105 g/L and the mean cell volume (MCV) is 70 fL (normal range 77-95 fL).

What is the most appropriate management?

A.No treatment needed, Hb is within normal range for pregnancy

B.Blood transfusion

C.Oral iron tablets

D.Parenteral iron infusion

E.Take a further blood sample for haematinics before deciding management

Answer:Oral iron tablets

Explanation:

This question is about the management of anaemia in pregnancy.

Anaemia in pregnancy is defined using different cut off values than in non-pregnant women and varies according to trimester. British Committee for Standards in Haematology (BCSH) guidance gives the following values:

first trimester Hb less than 110 g/l

second/third trimester Hb less than 105 g/l

postpartum Hb less than 100 g/l

In this question the Hb is checked at booking and is less than 110 g/L therefore this is a first trimester anaemia.

The correct answer is - oral iron tablets. Royal College of Obstetricians and Gynaecologists (RCOG) guidelines advise for normocytic or microcytic anaemia a trial of oral iron should be considered as the first step, and further investigations only required if no rise in haemaglobin after 2 weeks.

Parenteral iron is only indicated if oral iron is not tolerated, absorbed, patient is not compliant or they are near term and there is insufficient time for oral iron to be effective.

Blood transfusion is inappropriate at this level of haemoglobin without active bleeding.

Question:

A 45-year-old woman presents to rheumatology clinic with ulcers on her fingertips on a background of Raynaud's disease, which was recently diagnosed by her GP. She also complains of pain in her legs which comes on when walking and eases on rest. Otherwise, her past medical history is unremarkable, aside from currently smoking 20 cigarettes a day. Examination demonstrates tobacco-stained and ulcerated finger tips and weak pedal pulses.

What is the single greatest risk factor for developing this patient's condition?

A.Caucasian

B.Female gender

C.History of autoimmunity

D.Smoking

E.Age over 50

Answer:Smoking

Explanation:

Thromboangiitis obliterans (Buerger's disease) is strongly associated with smoking

Important for meLess important

The combination of Raynaud's syndrome, intermittent claudication and finger ulcerations in a young smoker is consistent with thromboangiitis obliterans (Buerger's disease). The single strongest risk factor for thromboangiitis obliterans is smoking.

There is not an increased risk in Caucasians compared to other ethnicities.

Thromboangiitis obliterans is more common in men than women.

While there is some evidence of autoimmune processes being involved in the pathophysiology of thromboangiitis obliterans, a history of autoimmunity is more associated with other differential diagnoses of Raynaud's phenomenon e.g. SLE.

Thromboangiitis obliterans is more common in younger patients, under 50.

Question:

Which one of the following is responsible for causing scarlet fever?

A.Group A haemolytic streptococci

B.Staphylococcus aureus

C.Human herpesvirus type 6

D.Parvovirus B19

E.Coxsackie A16

Answer:Group A haemolytic streptococci

Explanation:

Question:

A 46-year-old man presents to his GP complaining of vertigo with a history of a cough and sore throat last week. Since then he reports experiencing a spinning sensation which can last hours and cause significant nausea. It is impacting his life as he cannot leave the house to go to work as a teacher.

The GP performs an ENT examination which reveals no hearing loss, intact tympanic membranes and horizontal nystagmus.

What is the most appropriate treatment?

A.Dix-Hallpike manoeuvre

B.Epley manoeuvre

C.Long-term treatment with prochlorperazine

D.Short course of oral prochlorperazine

E.Vestibular rehabilitation exercises

Answer:Short course of oral prochlorperazine

Explanation:

Prochlorperazine may be useful in the acute phase of vestibular neuronitis, but should be stopped after a few days as it delays recovery by interfering with central compensatory mechanisms

Important for meLess important

This patient has presented with an acute history of recurrent vertigo attacks lasting hours associated with nausea and horizontal nystagmus, on a background of a viral upper respiratory tract infection, therefore the most likely diagnosis is vestibular neuronitis. A short course of oral prochlorperazine is the recommended treatment, although buccal or intramuscular prochlorperazine may be used in more severe cases.

When used to treat vestibular neuronitis, prochlorperazine should be stopped after a few days as it delays recovery, so long-term treatment with prochlorperazine would be inappropriate.

Vestibular rehabilitation exercises may be offered to patients who experience chronic symptoms but this patient is still in the acute phase so would not be considered initially.

The Dix-Hallpike manoeuvre is used to diagnose patients with benign paroxysmal positional vertigo (BPPV) which presents as episodes of vertigo lasting 10-20 seconds triggered by a change in head position. The condition is also associated with nausea but is not the most likely cause of symptoms in the scenario.

Epley manoeuvre is the recommended management of BPPV and can be performed by the GP.

Question:

An 83-year-old man is referred to the emergency department by his GP with a three days history of lower abdominal pain and distension. He has not been able to pass stool or flatus. He had a laparotomy for a perforated duodenal ulcer 20 years previously. On examination, his abdomen is distended and non-tender and he appears to be in obvious distress. The CT scan of his abdomen and pelvis shows evidence of large bowel obstruction at the splenic flexure.

What is the most likely cause of his presentation?

A.Adhesions from previous surgery

B.Colon cancer

C.Diverticular stricture

D.Inguinal hernia

E.Sigmoid volvulus

Answer:Colon cancer

Explanation:

Bowel cancer is the most common cause of large bowel obstruction

Important for meLess important

The correct answer is colon cancer. The patient is presenting with the classical signs of large bowel obstruction: colicky or cramping abdominal pain, absolute constipation and abdominal distension. The most common cause of large bowel obstruction is bowel cancer. This type of cancer can give unspecific symptoms and become evident only when it blocks the passage of stool through the large bowel, causing an obstruction.

Adhesions from previous surgery are the most common cause of small bowel obstruction. This type of obstruction has similar symptoms to a large bowel obstruction but is usually accompanied by early vomit. Additionally, the CT scan showed that the location of the obstruction was at the splenic fixture, which is a segment of the large bowel.

Diverticular strictures can be caused by severe diverticular disease, especially after recurrent episodes of diverticulitis. The sigmoid colon is the most common segment involved. The patient does not have a past medical history of diverticular disease or diverticulitis, additionally, his obstruction is at the splenic flexure.

Hernias are the second most common causes of small bowel obstruction but extremely rarely occur in the large bowel. The large bowel is fixed by the mesentery so it cannot herniate, whilst the small bowel is free in the abdomen so it can be displaced.

Sigmoid volvulus causes obstruction and it is common in the elderly. The CT, in this case, would show a volvulus in the sigmoid colon; however, the patient here has an obstruction at the splenic flexure.

Question:

A 19-year-old man presents to his GP with swelling of his scrotum. He complains of pain in that area and says it has developed over the course of the previous three days.

On examination, the testes are palpable but tender to touch. The scrotum is red and hot.

What is the most appropriate first line investigation?

A.Alpha-fetoprotein

B.Full blood count and CRP

C.Mid-stream urine sample

D.Testicular ultrasound

E.Urethral swab for NAAT

Answer:Urethral swab for NAAT

Explanation:

Investigations for suspected epididymo-orchitis are guided by age:

sexually active younger adults: NAAT for STIs

older adults with a low-risk sexual history: MSSU

Important for meLess important

The clinical picture here suggests epididymo-orchitis, an infection of the testes and epididymis. The likely cause can be guided by the epidemiology of the patient. In a young male, who is likely sexually active, the most likely cause is a sexually transmitted infection. Therefore, the most appropriate first line test will be a urethral swab for NAAT.

Alpha-fetoprotein is incorrect. This is a tumour marker for testicular cancer, specifically non-seminomatous germ cell tumour. There is nothing here to suggest testicular cancer, as this would present with a unilateral swelling and wouldn't appear infected with redness or hotness.

Full blood count and CRP is incorrect. Whilst this would likely show that there is an infection present, it would not help guide treatment or find the underlying cause. It would be an expected investigation in epididymo-orchitis but not he first line.

Mid-stream urine sample is incorrect. This would be useful in epididymo-orchitis of an older man who is not likely to have a sexually transmitted infection, but is likely to have a urinary tract infection as the cause of the infection.

Testicular ultrasound is incorrect. Ultrasound can be used for investigation of a hydrocele or varicocele, however, neither of these are present here.

Question:

A 62-year-old man presents following a recent diagnosis of small cell lung cancer. He is suffering a variety of aches and pains around his body despite taking MST 20mg bd. He is worried that the pains could be related to the cancer spreading to his bones. What is the most common site of bone metastases?

A.Skull

B.Metacarpals

C.Pelvis

D.Ribs

E.Spine

Answer:Spine

Explanation:

Question:

A 27-year-old man who has sex with men (MSM) presents to the sexual health clinic with painless genital ulceration. Which of these organisms is most likely to be the cause?

A.HSV-1

B.HSV-2

C.Treponema pallidum

D.Treponema denticola

E.Klebsiella granulomatis

Answer:Treponema pallidum

Explanation:

Genital herpes is mostly associated with painful ulceration, while syphilis presents mostly with painless ulceration

Important for meLess important

Treponema pallidum causes syphilis, which can present with painless genital ulceration (classically a single ulcer).

Treponema denticola is one of the main aetiological agents for periodontitis.

Herpes simplex viruses 1 and 2 cause oral and genital herpes (typically painful ulcers).

Klebsiella granulomatis also causes painless ulceration but is rare in developed countries.

Question:

You are the surgical F1 on call, when a patient comes in with haematemesis and black, foul-smelling, loose stools. You suspect an upper GI bleed, but realise that it is essential to identify whether the origin of the bleed is upper or lower GI, as this dictates the most appropriate management.

Which anatomical landmark will allow the categorisation of the bleed during urgent endoscopy?

A.The jejunoileal junction

B.The ampulla of Vater

C.The ileocaecal valve

D.The ligament of Treitz

E.The caecum

Answer:The ligament of Treitz

Explanation:

The definition of an Upper GI Bleed is a haemorrhage with an origin proximal to the ligament of Treitz

Important for meLess important

The ligament of Treitz (also known as the suspensory muscle of the duodenum) is found at the duodenojejunal flexure. It marks the boundary between the first and second parts of the small intestine and is the formal boundary between the upper and lower GI tracts. Thus, it helps distinguish between an upper GI bleed (proximal) and a lower GI bleed (distal). It also has clinical relevance in children in whom malrotation of the gut is suspected, as embryologically it forms the superior retention band, and identification of the ligament in the correct anatomical place can exclude malrotation.

The caecum is the first part of the colon, and the ileocaecal valve delineates between the large intestine and the small intestine. It is commonly thought that the distinction between upper and lower GI bleed is to do with small and large intestine, but this is not the case.

Similarly, the jejunoileal junction is between the jejunum and the ileum and has no role in categorising GI bleeds. Nor does the ampulla of Vater, the site at which the common bile duct opens onto the duodenum, although this is near the ligament of Tretiz.

Question:

A 40-year-old female presents with a six-hour history of painful visual loss of her right eye. She feels well otherwise and reports no nausea or vomiting. On examination, the patient's right eye pupil does not constrict when exposed to torchlight and exhibits paradoxical dilatation on the swinging light test consistent with a relative afferent pupillary defect.

The patient's temperature is 36.8ºC, BP 128/72mmHg, heart rate 80 beats/min.

What is the most appropriate investigation for the underlying cause of her symptoms?

A.Tonometry

B.MRI without contrast

C.MRI with contrast

D.Lumbar puncture

E.CT head

Answer:MRI with contrast

Explanation:

MRI with contrast should be used to view demyelinating lesions

Important for meLess important

Acute optic neuritis is a common initial presentation of multiple sclerosis. MRI with contrast is the gold standard for investigating demyelinating lesions.

Tonometry is an important investigation for acute angle-closure glaucoma, however, the patient would likely have injected sclera, nausea, or vomiting, and feel unwell.

MRI without contrast may be used to detect blood vessel activity or in those in which contrast is contraindicated e.g. pregnant women or chronic kidney disease.

A lumbar puncture can be used to support a diagnosis of multiple sclerosis as oligoclonal bands may be present. Oligoclonal bands can also occur in encephalitis, sarcoidosis, and systemic lupus erythematosus, and therefore it is not the first choice.

A CT head is indicated if the increased intracranial pressure is suspected.

Question:

Whilst examining a patient the following is found on fundoscopy:

What is this finding most suggestive of?

A.Central retinal artery occlusion

B.Normal fundus

C.Papilloedema

D.Untreated glaucoma

E.Optic atrophy

Answer:Papilloedema

Explanation:

The finding would also be expected in the other eye as papilloedema is nearly always a bilateral finding.

Question:

A 56-year-old male presents to eye casualty with a one-day history of a painful red eye. He has a past medical history of hypertension and type II diabetes mellitus. He wears glasses for his hypermetropia.

On examination of the right eye, a ciliary injection accompanies a fixed mid-dilated pupil. The pain is exacerbated when assessing pupillary reaction, which is non-reactive. His visual acuity is markedly reduced in his right eye compared to his left.

Gonioscopy was performed, and the trabecular meshwork was not visualised.

Given the likely diagnosis, what is the first-line management?

A.Administer gentamicin eye drops

B.Administer pilocarpine, timolol, and brimonidine eye drops

C.Administer prednisolone eye drops

D.Prescribe cyclopentolate eye drops

E.Urgent laser peripheral iridotomy

Answer:Administer pilocarpine, timolol, and brimonidine eye drops

Explanation:

Acute angle closure glaucoma: ocular pain, decreased visual acuity, worse with mydriasis, haloes around lights

Important for meLess important

Administer pilocarpine, timolol, and brimonidine eye drops is the correct answer. This patient has presented with features most in keeping with acute angle closure glaucoma (AACG). Long-sightedness (hypermetropia) is a risk factor for AACG. The examination findings of a fixed mid-dilated pupil are consistent with AACG, and the inability to visualise the trabecular meshwork is in keeping with the loss of the angle between the cornea and the iris. Pilocarpine (cholinergic), timolol (beta-blocker), and brimonidine (alpha-agonist) are all used to reduce intra-ocular pressure (IOP), which is compromising the optic nerve.

Administer gentamicin eye drops is incorrect. This is an antibiotic treatment which may be used in the treatment of eye infections such as microbial keratitis. This patient does not have risk factors for an eye infection (e.g. contact lens use, eye contamination), and his examination and gonioscopic findings are more in keeping with AACG.

Administer prednisolone eye drops is incorrect. This steroid eye drop is used to manage inflammatory eye diseases such as anterior uveitis. Anterior uveitis may present with a painful red eye; however, on examination, the patient will have a ciliary flush, an abnormally shaped pupil, and may have pus in the anterior chamber. This patient's gonioscopy findings are more suggestive of angle closure.

Prescribe cyclopentolate eye drops is incorrect. This is a mydriatic eye drop which may worsen this patient's pain and condition by reducing the angle. Mydriatic eye drops may be used in the management of anterior uveitis. Anterior uveitis may present with a painful red eye; however, on examination, the patient will have a ciliary flush, an abnormally shaped pupil, and may have pus in the anterior chamber. This patient's gonioscopy findings are more suggestive of angle closure.

Urgent laser peripheral iridotomy is incorrect. This is the definitive treatment for acute angle closure glaucoma once the IOP is reduced and the attack is resolved. This patient has presented with an acute attack and therefore requires medical management to reduce the IOP.

Question:

A 56-year-old man presents to the emergency department with seizures.

He has a history of bipolar disorder and migraines.

His medications include lithium, amitriptyline and paracetamol. His partner reports he has recently been using ibuprofen regularly over the counter.

On examination, he is post-ictal and appears dehydrated.

Blood results reveal:

Na+ 154 mmol/L (135 - 145)

K+ 5.3 mmol/L (3.5 - 5.0)

Urea 12.8 mmol/L (2.0 - 7.0)

Creatinine 174 µmol/L (55 - 120)

Lithium+ 2.6 mmol/L (0.4 - 1.0)

Resuscitation is initiated with intravenous 0.9% normal saline.

What is the definitive management of this presentation?

A.Activated charcoal

B.Atropine

C.Haemodialysis

D.N-acetylcysteine

E.Sodium bicarbonate

Answer:Haemodialysis

Explanation:

Severe lithium toxicity is an indication for haemodialysis

Important for meLess important

Haemodialysis is indicated in severe lithium toxicity (concentrations in excess of 2 mmol/L) if neurological symptoms or renal failure are present. Given the presentation with seizures and the markedly raised lithium level, haemodialysis would be required. Resuscitation with 0.9% intravenous normal saline alone may be sufficient in mild to moderate lithium poisoning, where the patient is showing non-specific signs of toxicity, such as apathy and restlessness.

Sodium bicarbonate is sometimes used as an adjunct in lithium toxicity for urinary alkalinization but alone it would not be used in this case without the ultimate management step: haemodialysis.

Atropine is an antidote in anticholinesterase poisoning and can treat symptomatic bradycardia, but would not be used in this scenario.

N-acetylcysteine is used to treat paracetamol overdose but has no definitive role in the management of lithium toxicity.

Activated charcoal should not be used in lithium toxicity. Repeated doses given by mouth can however enhance the elimination of some drugs in overdose, for example, carbamazepine and theophylline.

Question:

A 19-year-old man presents to his GP with symptoms of low mood, anhedonia and reduced appetite which have been present for 3 months. He has had episodes of suicidal ideation in the past, but not recently.

He is reluctant to try cognitive behavioural therapy. The GP recommends starting sertraline, and the patient agrees.

After how long should this patient be reviewed?

A.1 month

B.1 week

C.2 weeks

D.3 months

E.6 months

Answer:1 week

Explanation:

Patients ≤ 25 years who have been started on an SSRI should be reviewed after 1 week

Important for meLess important

The patient should be reviewed after 1 week. All patients who start a selective serotonin reuptake inhibitor (SSRI) are initially at an increased risk of suicidal ideation, however, this side effect is most prevalent in younger patients. For this reason, patients under 25, or patients who are at an increased risk of suicide, should be reviewed after 1 week.

1 month is an incorrect answer because this patient's age means that he is at higher risk of suicidal ideation and attempting suicide after starting an SSRI. A one-month period is appropriate when tapering off SSRIs (gradually reducing the dose) to reduce the risk of withdrawal and increased side effects, however, it is too long to wait for an initial review.

2 weeks is an incorrect answer because this patient is under 25. However, patients over 25 should be reviewed after 2 weeks after starting an SSRI, unless the doctor deems them at higher risk of suicide, in which case 1 week is more appropriate. It is worth noting that SSRIs will not reach full efficacy after 1 or 2 weeks, so symptoms are unlikely to have improved and the purpose of this review is mostly to assess for the presence of suicidal ideation. SSRIs can take 4+ weeks for beneficial effects to be seen. If no improvement is seen after 4 weeks of SSRI therapy, an alternative dose or drug is considered.

3 months is an incorrect answer because it is too long to wait before a review for the reasons above. Patients should be counselled to be vigilant for an increase in suicidal thoughts, agitation and anxiety when starting SSRIs. These side effects, if present, should be addressed sooner than 3 months, and patients will commonly try more than one SSRI (or other class of antidepressant) before finding one which has an acceptable balance of side effects and benefits for them. Other common side effects of SSRIs include gastrointestinal disturbances, sexual dysfunction and hyponatraemia.

6 months is an incorrect answer because it is too long to wait before an initial review for the reasons above. Once a patient is stable on an SSRI and has achieved remission, patients should be advised to continue on the drug for at least 6 months to reduce the risk of relapse.

Question:

A 65-year-old man returns to his GP after investigation for headaches. A radiologist report has found brain tumours which appear metastatic in origin.

Which primary cancer is most likely to be responsible for his brain lesions?

A.Colon

B.Lung

C.Breast

D.Leukaemia

E.Melanoma

Answer:Lung

Explanation:

Lung primary tumours are the most common cause of brain metastases

Important for meLess important

Brain metastases are more common than primary brain tumours. The most common cause of brain metastases is lung cancer.

Question:

A 35-year-old pregnant woman presents with premature labour at 30 weeks gestation. What is the most important treatment for prevention of neonatal respiratory distress syndrome?

A.Administer dexamethasone to the mother

B.Administer synthetic surfactant to the neonate

C.Extracorporeal membrane oxygenation

D.Provide continuous positive airway pressure to the neonate

E.Administer dexamethasone to the neonate

Answer:Administer dexamethasone to the mother

Explanation:

Neonatal respiratory distress syndrome (NRDS) is primarily a disease of pre-term neonates due to surfactant deficiency. Deficiency of surfactant results in an increased alveolar surface tension, thereby resulting in decreased compliance and increased work of breathing. Natural maternal glucocorticosteroids are very important for surfactant production in the foetus, and therefore synthetic steroids are the first line agents for preventing NRDS in pregnancies at risk of pre-term birth. Tocolytics are agents that can be used to suppress pre-term labour, however they are not routinely used. Since administration of maternal steroids takes one to two days to increase surfactant levels, tocolytics can be considered in certain situations to buy time.

Although curosurf, continuous positive airway pressure, and extracorporeal membrane oxygenation can be an effective form of treatment for NRDS they are not used prophylactically.

Question:

A 24-year-old man is brought to the emergency department with abdominal pain, nausea, and vomiting. He appears unwell and is mildly agitated whilst in the department. Bedside observations and bloods are taken. A urine dipstick is also performed and shows ++ for ketones. His medical records show no known medical conditions and no regular medications.

Observations:

Heart rate 120 BPM

Respiratory rate 24 /minute

Oxygen saturations 97%

Blood pressure 110/74 mmHg

Temperature 37.4ºC

Capillary blood glucose 3.9 mmol/L

Venous blood gas:

pH 7.28 (7.35 - 7.45)

pO2 8.3 (10.0 - 14.0)

pCO2 3.7 (4.5 - 6.0)

HCO3- 16 (22 - 30)

Lactate 0.9 (0.5 - 1.0)

Given the above, what is the most likely diagnosis?

A.Alcoholic ketoacidosis

B.Diabetic ketoacidosis

C.Encephalitis

D.Gastroenteritis

E.Mesenteric ischaemia

Answer:Alcoholic ketoacidosis

Explanation:

Metabolic ketoacidosis with normal or low glucose: think alcohol

Important for meLess important

In this scenario, a young male is brought to the emergency department with abdominal pain, nausea, vomiting, and agitation. His observations show tachycardia and tachypnoea, and his venous blood gas (VBG) shows a metabolic acidosis with partial respiratory compensation. Given that his lactate is normal, and his capillary blood glucose is low, the most likely diagnosis is alcoholic ketoacidosis.

Alcoholic ketoacidosis is a state of ketoacidosis (with normal or low glucose levels) that occurs in people who regularly drink large volumes of alcohol. This state arises when a malnourished individual binges alcohol, which causes fat metabolism (to seek a source of energy). A by-product of this metabolism is ketones, which accumulate to cause ketoacidosis. Management involves intravenous saline and thiamine. The patient may also require alcohol-dependence support and dietician input.

Diabetic ketoacidosis (DKA) is an important differential to consider but is not the most likely diagnosis in this scenario given the patient's low blood glucose level. DKA is a state of ketoacidosis caused by ketone accumulation when insulin is not available for use in the body; typically seen in type 1 diabetes mellitus. A diagnosis requires 3 criteria to be met:

1. A history of diabetes or hyperglycaemia (>11.0 mmol/L).

2. Raised ketones (on bloods or at least 2+ on urine dip).

3. Acidosis (pH <7.3 or low HCO3-).

The criteria for diabetic ketoacidosis can be remembered as: DKA.

D = Diabetic or hyperglycaemia.

K = Ketones raised.

A = Acidosis.

Encephalitis is not the most likely diagnosis. Whilst encephalitis should be considered in a patient presenting with acute agitation and vomiting, other typical findings of fever and altered consciousness are not described. Furthermore, the VBG results would not be typical of those seen in encephalitis. Instead, the VBG in encephalitis is more likely to be normal.

Gastroenteritis is not the most likely diagnosis. Gastroenteritis is an infection (often viral in aetiology) with associated vomiting and diarrhoea. Only vomiting is described in this patient, and the remaining presentation would not be typical of gastroenteritis. The patient appears acutely unwell, but his observations would not align with such a severe gastroenteritis infection (e.g. normal blood pressure and no fever). Whilst metabolic acidosis may also be seen in a severely dehydrated patient with gastroenteritis, the clinical scenario makes the diagnosis of alcoholic ketoacidosis more likely.

Mesenteric ischaemia is a condition which can present with abdominal pain, vomiting, and an acutely unwell patient, however it is not the most likely diagnosis. This is a young patient with no known risk factors (such as atrial fibrillation), so the diagnosis is already unlikely. Furthermore, given that the lactate is normal, ischaemia to the bowel is unlikely.

Question:

Tabitha is a 78-year-old woman who presents with urinary incontinence. Her incontinence has been ongoing for the past 2 years with no relief. Her symptoms usually occur on laughing and coughing. She has not experienced any episodes of nocturia. She also has not experienced a strong need to pass urine prior to her incontinence.

She has tried pelvic floor exercises and reducing caffeine intake but these failed to improve her symptoms.

Her urinalysis today shows no leukocytes or nitrites. A pelvic examination does not show any evidence of uterine prolapse. On consultation, she declines any surgical intervention.

What is the next most appropriate intervention for her incontinence?

A.Duloxetine

B.Mirabegron

C.Oxybutynin

D.Solifenacin

E.Tolterodine

Answer:Duloxetine

Explanation:

Duloxetine may be used in patients with stress incontinence who don't respond to pelvic floor muscle exercises and decline surgical intervention

Important for meLess important

Her symptoms suggests her incontinence is likely due to stress incontinence. It is important to rule out other causes such as infection as the underlying cause for urinary incontinence prior to embarking on further treatment.

Medical management should be trialled when non-pharmacological management fails. This normally involves pelvic floor exercises and reduction in dietary caffeine.

Medical management of stress incontinence is duloxetine. This acts as a serotonin/norepinephrine reuptake inhibitor and its common side effects include nausea, dizziness and insomnia.

Oxybutynin, tolterodine, and solifenacin are often used as 1st-line treatment for urge incontinence and are all antimuscarinic agents. Should these therapies fail, mirabegron, an β3 agonist, can be used as a 2nd-line therapy.

Question:

A 24-year-old female presents with episodic wheezing and shortness of breath for the past 4 months. She has smoked for the past 8 years and has a history of eczema. Examination of her chest is unremarkable. Spirometry is arranged and is reported as normal.

What is the most appropriate next steps?

A.Trial of a salbutamol inhaler

B.Fractional exhaled nitric oxide + spirometry/bronchodilator reversibility test

C.Baseline FEV1 repeated following inhaled corticosteroids

D.Arrange a chest x-ray

E.Trial of a salbutamol inhaler and low-dose inhaled corticosteroid

Answer:Fractional exhaled nitric oxide + spirometry/bronchodilator reversibility test

Explanation:

Adults with suspected asthma should have both a FeNO test and spirometry with reversibility

Important for meLess important

Question:

An 18-year-old female presents to her GP as she has missed one of her Microgynon 30 pills yesterday morning. She has taken Microgynon for the past 2 years and is currently 4 days into a packet of pills. She had sexual intercourse last night and is unsure what to do. She took yesterday's pill and today's pill this morning. What is the correct management?

A.Advise condom use for next 7 days

B.Perform a pregnancy test

C.Omit pill break at end of pack

D.No action needed

E.Emergency contraception should be offered

Answer:No action needed

Explanation:

As she has only missed one pill no action is needed. For further information please consult the link to the FSRH guidelines.

The October 2011 AKT feedback stated: 'With regard to AKT 13, knowledge about basic contraceptive issues seemed to be lacking. '

Question:

A 19-year-old woman presents to your surgery after engaging in unprotected sexual intercourse (UPSI) 4 days ago. She is not on any contraception and is worried she will become pregnant. This woman has a past medical history of major depression and severe asthma, for which she takes 25mg OD sertraline, 200 micrograms salbutamol inhaler PRN, beclomethasone 400 micrograms BD and formoterol 12 micrograms BD.

She is on day 25 of a 35 day cycle.

What is the most appropriate intervention to prevent this woman becoming pregnant?

A.Intra-uterine device

B.Levonorgestrel

C.Mirena coil

D.No intervention needed

E.Ulipristal (EllaOne)

Answer:Intra-uterine device

Explanation:

Ulipristal should be used with caution in patients with severe asthma

Important for meLess important

The answer is the intra-uterine device aka the copper coil. This woman is presenting 4 days (96 hours) after UPSI. The levonorgestrel pill is only effective up to 72 hours after UPSI, so is not appropriate. Ulipristal is effective up to 120 hours after UPSI, but is cautioned due to this patient's severe asthma, thus the IUD would be the most appropriate in this scenario.

No intervention is not appropriate as this woman is on day 25 of her 35 days cycle, meaning her UPSI occurred in her most fertile window, 12-14 days before the end of her cycle, near ovulation.

Mirena coil is not effective as emergency contraception, as oral hormonal therapies are available.

Question:

A 55-year-old lady presents to the GP as she is about to travel to Australia for her daughter's wedding. She is due to fly next week and is starting to worry that she may develop a blood clot while she flies. She has previously had a DVT after a surgery when she was 45 and her mother and auntie both died of a pulmonary embolism after a DVT.

What is the most appropriate prophylaxis required in this patient?

A.No prophylaxis needed

B.Anti-embolism stockings

C.Intermittent pneumatic compression boots

D.1 week of daily aspirin before the flight

E.Advise that she does not travel

Answer:Anti-embolism stockings

Explanation:

There is no role for aspirin for DVT prophylaxis whilst travelling

Important for meLess important

This question is asking about the appropriate DVT prophylaxis in a long haul flight. In this case, we can treat the woman as moderate or high risk as she has a strong family history of DVT as well as a personal history of DVT secondary to surgery. Therefore anti-embolism stockings are the most appropriate option in this case.

It is wrong to advise that no prophylaxis is needed as this is only true in low-risk cases, for which she is not.

Intermittent pneumatic compression boots would not be recommended, these are boots used in some surgeries to help reduce the risk of a DVT.

Answer 4 is wrong as it involves the use of aspirin which is not recommended in any form of clot prophylaxis.

Advising that she does not travel is a step too far, but it is appropriate to warn her of the risks and inform her that she is higher risk than most fliers.

Question:

A twenty-six-year-old male presents to the emergency department with a ache-like pain in his back that radiates to his right groin. The pain started two days previously, has been getting progressively worse and is worse when walking. He has taken paracetamol and ibuprofen but these have not helped. He also states he has been feeling ‘hot and cold’ for the past 24 hours.

He has no significant past medical history. He smokes 20 cigarettes a day, drinks 30 units of alcohol and week and injects heroin daily.

On examination:

Heart rate: 96/minute; Respiratory rate: 14/minute; Blood pressure 116/72 mmHg. Oxygen saturations 98%; Temperature: 38.4 ºC.

On examination of the spine and right hip, he is not tender on palpation of the spine or the hip joint, but experiences pain on movement of the hip joint, particularly flexion. There is no evidence of swelling or erythema of the spine or the hips, and no difference in temperature.

Abdominal exam: Abdomen soft and non tender. No organomegaly. Bowel sounds present. Kidneys are non-ballotable.

Which of the following is the most likely diagnosis?

A.Vertebral osteomyelitis

B.Iliopsoas abscess

C.Avascular necrosis of the femoral head

D.Renal stones

E.Appendicitis

Answer:Iliopsoas abscess

Explanation:

An iliopsoas abscess in an important differential to consider in patients presenting with fever and back/flank pain

Important for meLess important

This patient has an iliopsoas abscess (2). This is indicated by the location of his pain, in combination with a fever and pain on movement of the hip joint. The iliopsoas muscle extends from the lateral surface of the T12 - L5 vertebrae to the lesser trochanter of the femur. An iliopsoas abscess is a collection within the muscle, and is often a missed/late diagnosis. Being an intravenous drug user (IVDU) is a risk factor for developing this condition.

Vertebral osteomyelitis (1) usually presents with fever, tenderness and swelling over the infected vertebrae and weakness of the surrounding muscles. Examination of this patient’s spine was normal.

While avascular necrosis of the femoral head (3) may present with pain in the groin, as the patient is an IVDU and has a fever, an iliopsoas abscess is a more likely diagnosis.

Kidney stones (4) can present with loin to groin pain, however this pain would be constantly present and the patient would be unable to lie still. This patient’s pain is demonstrated only on movement of the hip joint.

This patient’s abdominal exam was normal, which makes appendicitis (5) a much less likely cause. In addition to this, the patient’s pain is not in the umbilical region or the right iliac fossa, which is where appendicitis pain usually presents.

Question:

A 40-year-old woman admitted with diabetic ketoacidosis develops sudden respiratory distress and general weakness. She has been treated with insulin and fluid therapy per protocol. Chest radiograph shows no active lung lesion. Repeated blood biochemistry reveals the following results:

Serum phosphate 0.3 mmol/L 1-1.4 mmol/L

Serum glucose 10 mmol/L <11mmol/L

Her arterial blood gas results are as follow:

pH 7.40 7.35 – 7.45

PaCO2 5.0 4.7-6.0 kPa

PaO2 12 11-13 kPa

HCO3- 24 22-26 mEq/L

Base excess -1 -2 to +2 mmol/L

Which of the following should be done with regards to the abnormal phosphate level for this patient?

A.Replace insulin therapy with oral hypoglycemia agents and initiate parenteral phosphate replacement therapy

B.Replace insulin therapy with oral hypoglycemia agents and initiate oral phosphate replacement therapy

C.Continue with current insulin therapy and initiate parenteral phosphate replacement therapy

D.Continue with current insulin therapy and initiate oral phosphate replacement therapy

E.Continue with current insulin therapy only and allow phosphate level to normalise on its own

Answer:Continue with current insulin therapy and initiate parenteral phosphate replacement therapy

Explanation:

Hypophosphataemia can be caused by diabetic ketoacidosis

Important for meLess important

The patient is experiencing acute respiratory failure secondary to severe hypophosphataemia. Her arterial blood gas results are normal hence this rules out respiratory distress secondary to metabolic acidosis.

Phosphate level (mmol/L) Severity

0.65-0.81 Mild

0.32-0.65 Moderate

<0.32 Severe

Hypophosphataemia is a common complication of insulin therapy in diabetic ketoacidosis (DKA) hence increasing the dosage of insulin is not an answer in this case. A rise in insulin causes phosphate to shift into the intracellular compartment, similar to the mechanism involved in hypophosphataemia as a result of refeeding syndrome or hyperglycaemic hyperosmolar non-ketotic coma (HONK).

Hypophosphataemia as a result of DKA treatment is usually transient and mild. Phosphate replacement therapy is rarely required unless it is severe and should be given as an infusion. Insulin therapy should never be stopped in a patient with DKA.

Question:

Which type of motor neuron disease carries the worst prognosis?

A.Relapsing-remitting

B.Progressive bulbar palsy

C.Progressive muscular atrophy

D.Spinocerebellar ataxia

E.Amyotrophic lateral sclerosis

Answer:Progressive bulbar palsy

Explanation:

Question:

A 65-year-old man with a history of type 2 diabetes mellitus and peripheral arterial disease is investigated for fatigue and pyrexia of unknown origin. He recently had an amputation of a toe on his left foot. A diagnosis of osteomyelitis is suspected in the left foot. What is the most appropriate investigation?

A.MRI

B.Plain x-ray

C.Positron emission tomographic (PET) scan

D.Bone biopsy

E.CT scan

Answer:MRI

Explanation:

Osteomyelitis: MRI is the imaging modality of choice

Important for meLess important

Question:

A 23-year-old woman is admitted to the hospital with abdominal pain. She has a pregnancy test in the department and which gives an unexpected positive result given the patient reports she is compliant with the combined oral contraceptive pill.

On review of her notes, you establish that she has recently commenced a new medication that could have contributed to her pregnancy.

What medication is most likely to have been recently started?

A.Carbamazepine

B.Ciprofloxacin

C.Omeprazole

D.Propranolol

E.Sodium valproate

Answer:Carbamazepine

Explanation:

Carbamazepine is a P450 enzyme inductor

Important for meLess important

Carbamazepine is a P450 enzyme inducer. Ethinylestradiol is used in the combined oral contraceptive (COC) pill and is a substrate of the CYP3A4 P450 isoenzyme system. Inducers of the P450 enzymes increase the speed of the breakdown of ethinylestradiol and reduce the efficacy of the COC pill.

Ciprofloxacin is a P450 enzyme inhibitor and so reduces the breakdown of P450 enzyme substrates.

Omeprazole is a P450 enzyme inhibitor and so reduces the breakdown of P450 enzyme substrates.

Propranolol is a P450 enzyme-substrate and is metabolized by the P450 system but doesn't affect its efficacy.

Sodium valproate is a P450 enzyme-substrate and is metabolised by the P450 system. There is also a small body of evidence indicating that it works as an enzyme inhibitor.

Question:

A 35-year-old man arrives at the GP with trouble walking. On examination his gait is abnormal, he places his feet widely apart and he staggers. There is a loss of the normal heel-toe pattern.

What is the name of this abnormality?

A.Trendelenburg gait

B.Waddling gait

C.Foot dropping gait

D.Antalgic gait

E.Ataxic gait

Answer:Ataxic gait

Explanation:

A wide-based gait with loss of heel to toe walking is called an ataxic gait

Important for meLess important

This question is asking about a man presenting with a wide-based gait, loss of the heel to toe pattern and instability. This is the description of an ataxic gait.

Ataxic gaits typically occur following cerebellar injury, the causes of which can be remembered by the mnemonic 'pastries'

P - Posterior fossa tumour

A - Alcohol

S - Multiple sclerosis

T - Trauma

R - Rare causes

I - Inherited (e.g. Friedreich's ataxia)

E - Epilepsy treatments

S - Stroke

Question:

A 54-year-old woman comes to the emergency department with a 2 day history of right upper quadrant pain and rigors. She had been seen by her GP 4 months ago with biliary colic and referred her for an elective cholecystectomy.

Her bloods are as follows:

Haemoglobin (Hb) 138 g/L Male: (135-180)

Female: (115 - 160)

Platelets 350 \* 109/L (150 - 400)

White cell count (WCC) 18.0 \* 109/L (4.0 - 11.0)

Na+ 135 mmol/L (135 - 145)

K+ 4.0 mmol/L (3.5 - 5.0)

Urea 5.6 mmol/L (2.0 - 7.0)

Creatinine 100 µmol/L (55 - 120)

C reactive protein (CRP) 180 mg/L (< 5)

Bilirubin 60 µmol/L (3 - 17)

Alkaline phosphatase (ALP) 120 u/L (30 - 100)

Alanine aminotransferase (ALT) 40 u/L (3 - 40)

Amylase 100 u/L (40 - 140)

What is the most likely diagnosis?

A.Ascending cholangitis

B.Biliary colic

C.Acute pancreatitis

D.Acute cholecystitis

E.Cholangiocarcinoma

Answer:Ascending cholangitis

Explanation:

RUQ pain with raised inflammatory markers in a patient with a history of gallstones points to acute cholecystitis or cholangitis rather than biliary colic

Important for meLess important

Right upper quadrant (RUQ) pain, fever and raised inflammatory markers suggests acute cholecystitis or ascending cholangitis. The abnormal liver function tests (LFTs) suggest ascending cholangitis rather than cholecystitis (according to Charcot's triad of RUQ pain, fever and jaundice for cholangitis).

Biliary colic would not cause fever and raised inflammatory markers.

A normal amylase makes acute pancreatitis unlikely.

The acute onset makes malignancy unlikely, especially as cholangiocarcinoma is relatively rare.

Question:

An 18-year-old bulimic patient presents to the emergency department with drowsiness and weakness, his ECG demonstrates ST depression, flattened T waves and prominent U waves. An arterial blood gas demonstrates hypokalaemia which you decide to treat with a pre-prepared infusion of 40mmol potassium in normal saline.

What is the minimum number of hours in which this bag of potassium can be infused safely?

A.16 hours

B.8 hours

C.4 hours

D.2 hours

E.1 hour

Answer:4 hours

Explanation:

The maximum rate of IV potassium infusion that can be conducted without monitoring is 10mmol/hour

Important for meLess important

Potassium infusions are usually given in pre-prepared bags to ensure the appropriate amount of K+, e.g. normal saline 0.9%/40mmol KCl IV, over 4hrs.

Question:

A 32-year-old woman presents at 34 weeks gestation in her first pregnancy. She was admitted with a seizure following a 1 day period of severe abdominal pain, nausea, vomiting, and visual disturbance. She has a family history of epilepsy. On examination, hyperreflexia is noted. What is the most likely diagnosis?

A.Encephalitis

B.Eclampsia

C.Epilepsy

D.Hyperemesis gravidarum

E.Pre-eclampsia

Answer:Eclampsia

Explanation:

Eclampsia is a condition characterised by seizures in a pregnant woman with pre-eclampsia. Early signs of pre-eclampsia include hypertension and proteinuria. Other symptoms of pre-eclampsia include abdominal pain, nausea, vomiting and visual disturbance.

Prolonged hyperemesis gravidarum can result in dehydration and metabolic abnormalities, which could result in seizures. However this would be less likely due to the 1 day history.

There is nothing in the history to suggest any of the other diagnoses.

Question:

A 19-year-old man presents to the Emergency Department after having stepped on a rusty nail whilst hiking through a field with his parents. The nail was visibly rusty and dirty, and traversed the lining of his shoe and pierced his skin. Aside from the injury itself, his parents express worry about tetanus. The patient has no significant past medical history, nor family history. He is up-to-date on all of his childhood vaccines. He takes no regular medications.

Which of the following actions should be taken with regards to tetanus?

A.Booster vaccine dose

B.Booster vaccine dose and tetanus immunoglobulin

C.No vaccine or tetanus immunoglobulin required

D.Tetanus immunoglobulin

E.Tetanus immunoglobulin now, booster vaccine dose in 1 week

Answer:No vaccine or tetanus immunoglobulin required

Explanation:

If a patient has had 5 doses of tetanus vaccine, with the last dose < 10 years ago, they don't require a booster vaccine nor immunoglobulins, regardless of how severe the wound is

Important for meLess important

The salient part of the history here is that the patient is up-to-date on his childhood vaccines. The UK schedule includes a course of 5 tetanus doses, given at 2 months, 3 months, 4 months, 3-5 years and 13-18 years. Current guidelines state that, if a patient has had 5 doses, with the last dose less than 10 years ago, no vaccine or immunoglobulin is required, regardless of the wound severity.

If the patient had had a full course of vaccines, but the last dose was over 10 years ago, a booster dose of the vaccine should be given if the wound is tetanus-prone. If the wound was high-risk, immunoglobulin should be given in addition to the booster vaccine.

If vaccination history was unknown or incomplete, a booster dose should be given regardless of wound severity. If the wound was high-risk, immunoglobulin should also be given.

The other options are therefore incorrect.

Question:

A 31-year-old Scottish woman attends the neurology clinic following a referral by her GP due to numbness and tingling in her left arm. She also reports an episode approximately seven months ago of visual blurring and pain in her left eye.

What is the most appropriate imaging modality to investigate the cause of this woman’s symptoms?

A.CT head with contrast

B.CT head without contrast

C.MRI brain and spine with contrast

D.MRI brain without contrast

E.MRI whole spine without contrast

Answer:MRI brain and spine with contrast

Explanation:

MRI with contrast should be used to view demyelinating lesions

Important for meLess important

The history is suggestive of a diagnosis of a central nervous system demyelinating disorder such as multiple sclerosis. The diagnostic criteria for multiple sclerosis are the McDonald criteria which specify two or more clinical episodes which are disseminated over time and affect anatomically different areas. The visual and limb symptoms could be due to separate lesions within the brain and the spinal cord or just within the brain but because of this, our imaging should look at both. To assess for acute demyelination the imaging modality of choice is an MRI with contrast as this will allow visualisation of acute inflammatory changes as well as anatomical changes of the grey and white matter.

CT without contrast is not helpful here. The only situation in which plain CT imaging of the central nervous system is appropriate is in acute trauma.

Although CT with contrast can highlight some inflammatory lesions, it gives us poor anatomical detail and won’t pick up chronic demyelination. CT with contrast is best for looking at vascular lesions.

MRI without contrast would be the second-best option but cannot tell us if lesions found are acute or chronic. Imaging only the brain or the spine could miss the lesion responsible for her symptoms and both should be imaged.

Question:

A 59-year-old man presents to the Emergency Department with severe pain in his right 1st metatarsophalangeal joint as well as his right ankle. The pain began during the night and has become worse since the morning after he took his morning furosemide. He also takes omeprazole for a recent peptic ulcer. Which of the following medications should be commenced to treat his symptoms?

A.Etoricoxib

B.Aspirin

C.Febuxostat

D.Colchicine

E.Allopurinol

Answer:Colchicine

Explanation:

Colchicine should be used to treat acute gout if NSAIDs are contraindicated for example a peptic ulcer.

Important for meLess important

This patient is suffering from acute gout and therefore normally he would be commenced on a high-dose NSAID such as aspirin or a coxib. However, as he has recently had a peptic ulcer, the two aforementioned are contraindicated. Thus, the next step would be to treat with colchicine.

Allopurinol is used to prevent further gout attacks and is commenced 3 weeks after an acute episode.

Febuxostat, a xanthine oxidase inhibitor, is an alternative if allopurinol if not tolerated or contraindicated.

Question:

A 30-year-old female presents to the ENT department for an elective endoscopic sinus surgical procedure. Prior to surgery, she is given an antiemetic to prevent pulmonary aspiration. 15 minutes later she starts exhibiting involuntary arm movements and is treated with diphenhydramine.

Which of the following antiemetic drugs possesses significant dopaminergic antagonist activity and is not used as an antipsychotic agent?

A.Ondansetron

B.Promethazine

C.Chlorpromazine

D.Metoclopramide

E.Dimenhydrinate

Answer:Metoclopramide

Explanation:

Metoclopramide works through antagonism of the D2 dopamine receptors

Important for meLess important

Despite metoclopramide working through antagonism at the dopamine D2 receptors it is not clinically used as an antipsychotic. Side effects include extra extrapyramidal movements including tardive dyskinesia described in the vignette. Dimenhydrinate works through antagonism of the histamine H1 receptor. Ondansetron works primarily through antagonism of the 5HT-3 serotonin receptor. Chlorpromazine and promethazine work both on dopaminergic receptors and are used as antipsychotic agents, the latter less so.

Question:

A 32-year-old man presents with a severe, intermittent, daily, right-sided frontotemporal headache over the past 4 weeks. It seems to occur early in the morning, around the same time each day and lasts for approximately 2 hours. The pain makes him feel nauseous although he has not vomited. He has been significantly stressed with work difficulties recently. Interestingly, he also reports his right eye sometimes appears red and painful with increased lacrimation. He has no loss of visual acuity.

What is the most likely underlying diagnosis?

A.Acute angle-closure glaucoma

B.Brain tumour

C.Cluster headache

D.Migraine

E.Tension headache

Answer:Cluster headache

Explanation:

'Clusters' of cluster headaches typically last from 4 to 12 weeks

Important for meLess important

Cluster headaches tend to affect men more than women and are characterised by 'clusters' of intermittent severe frontotemporal headaches lasting up to 2 hours usually at a time with ipsilateral autonomic disturbance.

In glaucoma, you would expect there to be a change in visual acuity.

Headaches related to brain tumours would not demonstrate ipsilateral autonomic disturbance (eye lacrimation) and would not tend to be so severe and intermittent.

Migraine is a possibility here, however again, you would not expect the ipsilateral autonomic disturbance. It would be unusual to be so frequent over the course of a 4 week period.

Tension headache is unlikely here as these are usually a less severe and bilateral headache without autonomic disturbance.

Question:

A 45-year-old man presents with a progressive history of fatigue, joint, and abdominal pain, and a bronze, greying of his skin. Base-level blood tests are shown below.

Albumin 20 g/L 35–55

ALT 68 U/L 10–40

Alkaline phosphatase 160 U/L 25–100

INR 1.9 >1.1

HbA1c 8% 4-5.6

An element absorption and metabolism disorder is suspected and genetic testing confirms the presence of a specific mutation causing the condition. Venesection is started as a first-line treatment.

What measurement is used along with ferritin to monitor this patient’s treatment?

A.Desferrioxamine

B.Haemoglobin

C.Serum iron

D.Total iron-binding capacity

E.Transferrin saturation

Answer:Transferrin saturation

Explanation:

Ferritin and transferrin saturation are used to monitor treatment in haemochromatosis

Important for meLess important

This patient has presented with the autosomal recessive iron absorption and metabolism disorder haemochromatosis. Patients normally develop complications of the condition after the age of 40 with common features including liver failure, type 2 diabetes, arthritis, and a bronze, greying of the skin. Diagnosis can be confirmed by identifying raised ferritin and transferrin saturation levels or via molecular genetic testing for the C282Y and H63D mutations. Venesection is the first-line treatment for the condition which is monitored via ferritin and transferrin saturation testing with target levels below 50ug/l and 50% respectively.

Desferrioxamine is an iron chelator that can be used as an alternative treatment for haemochromatosis if venesection cannot be performed. It acts by binding to free iron in the bloodstream and increasing elimination in the urine. Desferrioxamine is a medication and is, therefore, a separate form of treatment from venesection.

Haemoglobin (Hb) is an iron-containing protein found in red blood cells and, although reduced in iron deficits, a patient’s Hb level is relatively unaffected in iron overload. For this reason, it should not be measured to monitor venesection treatment of haemochromatosis.

Serum iron is a measurement of the total amount of circulating iron bound to both transferrin and ferritin. This level can be effect by several other factors such as haemoglobin levels and therefore the measurement has no value when attempting to diagnose haemochromatosis. It is the storage and excess of iron that is crucial to confirm the diagnosis and this is performed via ferritin and transferrin saturation.

Total iron-binding capacity (TIBC) is a specific investigation that measures a patient’s blood capacity to bind iron to transferrin. Although mainly used for establishing the cause of anaemia, TIBC levels are normally low in haemochromatosis which can assist in confirming the diagnosis. Again TIBC levels are not commonly used to monitor venesection treatment.

Question:

A 45-year-old man with end-stage emphysema due to alpha-1 antitrypsin deficiency is reviewed by the respiratory team. He is currently breathless walking 100m and struggles with many of his activities of daily living. Which of the following treatments may be used as a treatment in this case?

A.Insert a long term chest drain

B.Lung volume reduction surgery

C.Lung volume expansion surgery

D.Pneumonectomy

E.Tracheotomy

Answer:Lung volume reduction surgery

Explanation:

Lung volume reduction surgery can be used in the treatment of alpha-1 antitrypsin deficiency

Important for meLess important

This question is asking about the late stage treatment of alpha 1-antitrypsin deficiency. For respiratory management, it is similar to that of late stage chronic obstructive pulmonary disease (COPD). Therefore of the above options, lung volume reduction surgery is the correct answer.

Lung volume reduction surgery removes the worst affected part of the lungs in order to improve airflow and alveolar gas exchange in the remaining portion of the lung.

Inserting a chest drain or tracheostomy will not aid his symptoms, neither will a pneumonectomy.

Lung volume expansion surgery is not a real thing.

Question:

A 54-year-old man is investigated for a chronic cough. A chest x-ray arranged by his GP shows a suspicious lesion in the right lung. He has no past history of note and is a life-long non-smoker. An urgent bronchoscopy is arranged which is normal. What is the most likely diagnosis?

A.Lung sarcoma

B.Squamous cell lung cancer

C.Lung adenocarcinoma

D.Small cell lung cancer

E.Lung carcinoid

Answer:Lung adenocarcinoma

Explanation:

Lung adenocarcinoma

most common type in non-smokers

peripheral lesion

Important for meLess important

The clues are the absence of a smoking history and normal bronchoscopy, which suggests a peripherally located lesion.

Question:

A 32-year-old man has been admitted to the intensive care unit for monitoring after an emergency laparotomy for a sigmoid perforation.

On admission to the unit, he was hypertensive and the mean arterial pressure obtained from the arterial line was 122 mmHg. One hour later, the nurse alerts you that his blood pressure had acutely dropped and was now 57 mmHg. She took a non-invasive blood pressure from the other arm, which showed a higher pressure of 78 mmHg. The arterial line is flushing and aspirating freely.

On examination, he has translucent looking, thin skin. He has become tachycardic and is grimacing in pain. His oxygenation and ventilation have not changed. A 12-lead ECG shows widespread ST-depression, but a troponin-T taken at the time was normal. On attempting to examine his neurological system, you note hypermobility of the small joints, but the rest of the neurological examination was normal for a sedated patient. The calves appear normal.

A portable chest X-ray was conducted, which showed a widened mediastinum.

The intensive care consultant feels that computerised tomography (CT) would be unsuitable for this patient as he is too unstable.

Which investigation would be the next best definitive diagnostic tool for this patient?

A.Percutaneous coronary intervention (PCI)

B.Transoesophageal echocardiography (TOE)

C.Transthoracic echocardiography (TTE)

D.Ultrasound abdomen

E.Ultrasound Doppler of the lower limbs

Answer:Transoesophageal echocardiography (TOE)

Explanation:

Transoesophageal echocardiography (TOE) may be a useful investigation in clinically unstable patients with a suspected aortic dissection

Important for meLess important

This patient has a diagnosis of (vascular) Ehlers-Danlos Syndrome (EDS) with associated aortic dissection.

Features of Ehlers-Danlos syndrome in this patient are:

A sigmoid colon perforation of unknown cause, given his age;

Translucent looking skin and hypermobility of the small joints;

A presentation compatible with aortic dissection.

Features of aortic dissection in this patient are:

Widened mediastinum on chest X-ray;

An acute fall in blood pressure - which may indicate hypovolaemic shock from the dissection;

He is grimacing in pain - although one cannot identify from where it is coming;

Widespread ST-depression on ECG with a normal troponin, pointing away from acute ischaemia;

A difference in blood pressure between the two upper limbs - this is sometimes because the arterial line is blocked, kinked or positional, but the fact it is flushing and aspirating is reassuring.

The best way to diagnose an aortic dissection would be with a CT angiogram. This will identify an aortic intimal flap and an associated dissection with good sensitivity and specificity. However, this is not always suitable for unstable patients. Intubated patients require large teams to take to the scanner which requires meticulous coordination. Moreover, as a CT scan involves high exposure to radiation, the patient is the only one who should be in the room whilst being scanned. This means that if the patient were to arrest or deteriorate inside the scanner, then it is difficult to stop the scan and re-position the patient for effective resuscitation. Moreover, more resuscitation resources are available on the intensive care unit, and equipment needs to be carried to the scanner in bags.

The next best investigation would therefore be an echocardiogram. Transoesophageal images can better visualise the aorta and position of dissection than transthoracic imaging, with higher sensitivity and specificity. Oesophageal dopplers, echocardiograms and even gastrointestinal endoscopies can be performed on intubated patients.

An ultrasound abdomen may be useful to identify an abdominal aortic aneurysm, although this was not visualised during the laparotomy, and the other symptoms point more towards a dissection. Moreover, it is likely to be technically difficult to visualise the abdomen given recent surgery with free air in the abdomen.

An ultrasound Doppler of the lower limbs can be useful to exclude deep vein thrombosis and possible pulmonary embolism. This is an appropriate differential but given there was no change in oxygenation or ventilation, and there are no changes in the calves, dissection is more likely here.

Question:

A 50-year-old male with a long history of cirrhosis secondary to chronic hepatitis C is brought to the emergency department by his partner with a 2-day history of increasing confusion.

He is drowsy but is rousable to voice. He is able to obey commands but is not oriented to where he is. Further examination revealed significant hepatic flap, multiple spider naevi on the torso, and mild abdominal distension with shifting dullness.

He is afebrile and his partner denies any history of recent infection.

His blood sugar level is 6.8 mmol/L

Which of the following should be started next?

A.Intravenous dextrose

B.Regular intravenous haloperidol

C.Oral rifaximin

D.Intravenous midazolam

E.Regular oral lactulose

Answer:Regular oral lactulose

Explanation:

Lactulose and rifaximin are used for the secondary prophylaxis of hepatic encephalopathy

Important for meLess important

Hepatic encephalopathy is a common complication of liver cirrhosis. It is a neuropsychiatric syndrome of varying severity, ranging from disturbances in cognitive function or sleep-wake cycle to coma. Potential precipitants include infection (including septicaemia and spontaneous bacterial peritonitis), gastrointestinal bleeding, and metabolic or electrolyte disturbances, among others.

Management of hepatic encephalopathy entails supportive care and treating potential precipitating factors.

Hepatic encephalopathy is largely believed to occur from accumulation of ammonia in the blood stream due to the livers decreased ability to detoxify ammonia that is produced and transported from the gastrointestinal tract. One of the aim of treatment of hepatic encephalopathy is therefore to reduce the production and absorption of ammonia from the gastrointestinal tract. Lactulose is often used as the first line therapy. It is usually administered orally, but can be given per rectum if the patient is too drowsy to tolerate oral intake. Mechanisms of action of lactulose include the reduction of intestinal ammonia load through its action as a cathartic and its ability to inhibit ammoniagenic coliform bacteria by acidifying the colonic lumen.

Despite its common use in the treatment of hepatic encephalopathy, evidence regarding the efficacy of lactulose is however conflicting.

Oral rifaximin is sometimes used in cases of hepatic encephalopathy that are refractory to treatment with lactulose. It is also used to prevent hepatic encephalopathy in patients who have recurrence despite lactulose.

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Sharma P, Sharma BC, Agrawal A, Sarin SK. Primary prophylaxis of overt hepatic encephalopathy in patients with cirrhosis: an open labeled randomized controlled trial of lactulose versus no lactulose, J Gastroenterol Hepatol. 2012 Aug;27(8):1329-35. doi: 10.1111/j.1440-1746.2012.07186.x.

Question:

A four-year-old boy is brought in having been rescued, with his asylum-seeking parents, from a boat off the coast. The child is clearly malnourished, and his parents confirm, that due to conflict in their home country, he has spent most of his life hidden indoors and in shelters.

On skeletal examination the child has bossing of the forehead, bowing of his legs and significant kyphoscoliosis of the spine.

What is a recognised radiological feature of this child’s condition?

A.Ballooning

B.Osteolysis

C.Periarticular erosions

D.Sclerotic rims

E.Widening of joints

Answer:Widening of joints

Explanation:

Rickets can present as widening of the wrist joints due to an excess of non-mineralized osteoid at the growth plate

Important for meLess important

This child has presented with features in keeping with the bone disease Rickets. It is most often due to vitamin D deficiency, usually due to poor dietary intake and/or reduced sun exposure. This results inadequately mineralised developing/growing bones. A recognised radiological feature of the condition is widening of joints, specifically of the wrists, due to an excess of non-mineralised osteoid at the growth plate.

Ballooning is associated with rare bone malignancies and is a result of cortical destruction. In ballooning, there is an expansive, balloon-like appearance, normally of the long bone due to destruction of the endosteal cortical bone and the addition of newly formed bone on the outer surface occurring at the same rate. This feature is not seen in Rickets disease.

Osteolysis is associated with Paget’s bone disease where dysregulated bone remodelling occurs with excessive bone breakdown and subsequent disorganised new formation. The initial significant bone resorption is seen radiological as lytic lesions, a process known as osteolysis. This marked bone destruction is not seen in Rickets.

Periarticular erosions are a late sign in arthritic conditions, such as rheumatoid arthritis (RA), where there is excessive bone resorption and inadequate bone formation around affected joints. Again this radiological sign is not associated with Rickets.

Sclerotic rims or overhanging edge is due to bone erosion and therefore is seen in the later stages of conditions such as gout and RA and not in the bone demineralisation condition of Rickets.

Question:

You are a new F1 doctor on your induction week for the hospital you will be working in for the next 12 months. There have been socials most nights this week which involve going out to bars and clubs and drinking a lot of alcohol. Last night, you went out again to socialise with your new colleagues, but towards the end of the night, you became extremely drunk and disorderly outside one of the local clubs, which resulted in you getting arrested. However, the police were sympathetic and offered to give you a caution which you readily accepted and was released in the early hours of the morning. Of the options below, what is the most appropriate action?

A.Inform your educational supervisor of the event

B.Inform your clinical supervisor of the event

C.It is not necessary to inform anybody of the event but make sure it doesn't happen again

D.Inform the GMC of the event

E.Inform your foundation school of the event

Answer:Inform the GMC of the event

Explanation:

GMC guidance states you must inform them if you receive a caution from the police. The guidance does not state that you must inform your educational or clinical supervisors or your foundation school, however, they may have their own policies regarding such matters but you must always inform the GMC if you receive a caution regardless.

Good Medical Practice (2013)

http://www.gmc-uk.org/guidance/goodmedicalpractice.asp

Question:

A 9-year-old boy is brought to the GP by his mother. He has had a sore throat for the past 2 days with a cough and his mother is concerned he may have tonsillitis. On examination, his throat appears red but there is no exudate present. Cervical lymphadenopathy is noted. He is otherwise well and is apyrexial.

What Is the best management at this stage?

A.Prescribe a 3 day course of amoxicillin

B.Reassure and advise fluid intake and simple analgesia

C.Prescribe a 5 day course of amoxicillin

D.Prescribe a 5 day course of amoxicillin but delay starting for 2 days

E.Prescribe 3 day course amoxicillin and advise fluid intake and simple analgesia

Answer:Reassure and advise fluid intake and simple analgesia

Explanation:

The child in this scenario has a sore throat. It can be difficult to know when to prescribe antibiotics but the centor criteria can be used for advice. For an antibiotic to be necessary, 3 of the following should be present:

Presence of tonsillar exudate

Tender anterior cervical lymphadenopathy or lymphadenitis

History of fever

Absence of cough

The child in this scenario only has one of the above features and so antibiotics would not be indicated. Therefore, the best answer would be answer 2. Simple analgesia will relieve pain and regular fluid intake is important for hydration.

Question:

A 64-year-old man presents for review.

His blood pressure is poorly controlled at 154/88 mmHg despite treatment with amlodipine 10mg OD. He has no known drug allergies.

His blood tests from 2 weeks ago show:

Na+ 137 mmol/L (135 - 145)

K+ 3.9 mmol/L (3.5 - 5.0)

Urea 4.8 mmol/L (2.0 - 7.0)

Creatinine 109 µmol/L (55 - 120)

What is the best next step in management?

A.Add atenolol

B.Add furosemide

C.Add ramipril

D.Add spironolactone

E.Increase dose of amlodipine

Answer:Add ramipril

Explanation:

Poorly controlled hypertension, already taking a calcium channel blocker - add an ACE inhibitor or an angiotensin receptor blocker or a thiazide-like diuretic

Important for meLess important

Adding ACE inhibitor (ramipril) or angiotensin receptor blocker would be the most appropriate step given his blood pressure is still poorly controlled despite treatment with amlodipine, a calcium channel blocker.

Increasing the dose of the calcium channel blocker would not be appropriate as he is already taking the maximum dose of amlodipine.

Adding low-dose spironolactone is not indicated, although it could be considered at a later stage if his potassium remains below 4.5 mmol/L.

Adding a beta blocker, such as atenolol, could be considered later for resistant hypertension if his blood pressure remains poorly controlled.

Question:

A 14-year-old girl with known sickle cell disease presents to the emergency department feeling unwell. Her mother is concerned she has become very pale and lethargic.

She complains of a headache, lethargy, cough, myalgia and fever starting just over a week ago.

On examination, the observations are within normal limits. The patient appears pale. Abdominal, respiratory and cardiovascular examinations are otherwise unremarkable.

Significant blood results are shown below:

Hb 67 g/L Male: (135-180)

Female: (115 - 160)

Platelets 110 \* 109/L (150 - 400)

WBC 3.3 \* 109/L (4.0 - 11.0)

Bilirubin 5 µmol/L (3 - 17)

What is the most likely diagnosis?

A.Acute chest syndrome

B.Aplastic crisis

C.Haemolytic crisis

D.Sequestration crisis

E.Vaso-occlusive crisis

Answer:Aplastic crisis

Explanation:

Aplastic crises in sickle cell disease are associated with a sudden drop in haemoglobin

Important for meLess important

Aplastic crisis is correct. This patient describes a recent illness compatible with parvovirus B19 infection. This is then followed by significant pancytopenia, most notably a severe drop in haemoglobin suggesting an aplastic crisis.

Acute chest syndrome is incorrect. This would present with chest pain, cough, wheeze, dyspnoea and tachypnoea. Imaging would show pulmonary infiltrates. Acute chest syndrome is a type of vaso-occlusive crisis occurring within the lung circulation.

Haemolytic crisis is incorrect. This is rare and would present with severe anaemia and jaundice due to sudden haemolysis. The normal bilirubin points away from haemolysis.

Sequestration crisis is incorrect. This would present with abdominal pain, signs of haemodynamic compromise and hepatomegaly/splenomegaly. Pooling of blood in the spleen occurs, leading to severe anaemia and haemodynamic collapse.

Vaso-occlusive crisis is incorrect. These could affect different organs, but would typically present with the development of acute pain due to microvascular occlusion. Other presentations include dactylitis, cerebral infarction, mesenteric ischaemia, avascular necrosis of the femoral head or priapism.

Question:

Katie a 38-year-old woman who is G1P0 who is 15 weeks pregnant, comes to you to discuss her 12 weeks combined screening test results.

HCG ↑

PAPP-A ↓

Nuchal translucency Thickened

Katie has googled the results and is concerned that her child has Down's syndrome. She is very distressed. This is her first time becoming pregnant after 2 years of trying, and she is concerned she will not be able to conceive again on account of her age. However, Katie is unsure if she wants to continue with the pregnancy and is considering having a termination.

What is the best advice to give to Katie?

A.A chorionic villous sampling test would give a more accurate result

B.An amniocentesis test would give a more accurate result

C.Invasive tests are not indicated due to the risk of causing a miscarriage, the combined test shows the child has Down's syndrome

D.Offer the repeat combined test, to ensure the results are accurate

E.The quadruple test would give a more accurate result

Answer:An amniocentesis test would give a more accurate result

Explanation:

Down's syndrome is suggested by ↑ HCG, ↓ PAPP-A, thickened nuchal translucency

Important for meLess important

Chorionic villous sampling is a diagnostic test, which will show the fetal karyotype and will give a more accurate result than the combined test which is a screening tool. CVS is however usually performed between 11 weeks and the end of the 13th week, Katie is outside this window.

An amniocentesis is a diagnostic test that will show the fetal karyotype and will give a more accurate result than the combined test. Amniocentesis is usually performed from week 15 onwards, and so Katie should be booked for an amniocentesis to confirm the presence or absence of trisomy 21.

The combined test is non-diagnostic and should be followed by a diagnostic test. Invasive tests such as CVS and amniocentesis do carry a risk of miscarriage (1-2% and 0.5-1% respectively) however it is generally considered that this level of risk is acceptable when a screening test (like the combined test) indicates the chance of anomaly is high.

The combined test is offered between weeks 11 and the end of the 13th week. Katie is now outside of this window. There is no point in repeating a screening test as it still does not confirm or rule out a diagnosis, it is more appropriate to progress to a diagnostic test.

The quadruple test is generally offered between weeks 14-19 and so Katie would be in the right time frame. However, the quadruple test is another screening test. There is no point in repeating a screening test as it still does not confirm or rule out a diagnosis, it is more appropriate to progress to a diagnostic test.

Question:

What is the correct dose of intramuscular adrenaline to give a 10-year-old boy who is having an anaphylactic reaction?

A.IM adrenaline 300 mcg (0.3ml of 1 in 1,000)

B.IM adrenaline 100 mcg (0.1ml of 1 in 1,000)

C.IM adrenaline 200 mcg (0.2ml of 1 in 1,000)

D.IM adrenaline 150 mcg (0.15ml of 1 in 1,000)

E.IM adrenaline 500 mcg (0.5ml of 1 in 1,000)

Answer:IM adrenaline 300 mcg (0.3ml of 1 in 1,000)

Explanation:

Anaphylaxis: A child aged 6-11 years should be administered adrenaline at a dose of 300 micrograms (0.3ml), repeated every 5 minutes if necessary

Important for meLess important

Question:

A 13-year-old boy is brought to the emergency department with his parents with acute-onset right-sided groin pain and an inability to weight bear after a fall.

His heart rate is 95 bpm, his blood pressure is 120/74 mmHg, his BMI is 32 kg/m² and he is afebrile. On examination, he has an antalgic gait and decreased range of motion. The neurovascular status of both legs is intact.

Given the likely diagnosis, what is also most likely to be seen on examination?

A.Reduced external rotation of the leg in extension

B.Reduced external rotation of the leg in flexion

C.Reduced internal rotation of the leg in extension

D.Reduced internal rotation of the leg in flexion

E.Reduced leg abduction while leg is extended

Answer:Reduced internal rotation of the leg in flexion

Explanation:

There is often the loss of internal rotation of the leg in flexion in slipped capital femoral epiphysis

Important for meLess important

Reduced internal rotation of the leg in flexion is correct in this case. The most likely diagnosis is slipped capital femoral epiphysis (SCFE) due to the acute-onset right-sided groin pain and inability to weight bear following potential trauma in a boy with obesity aged between 10-15 years. SCFE is technically a misnomer, as the epiphysis remains in place and it is the metaphysis which slips anteriorly and externally rotates. Attempting to internally rotate the leg while the hip is flexed will attempt to overcome this external rotation which is limited in SCFE, therefore making this option correct.

Reduced external rotation of the leg in extension is incorrect in this case. In SCFE, the metaphysis of the femur slips anteriorly and externally rotates. Therefore, on examination, the external rotation would already be present, and attempting to do this further would demonstrate very little limitation. Many patients with SCFE prefer to hold their leg in external rotation as this hurts less.

Reduced external rotation of the leg in flexion is incorrect in this case. Similarly to the above, external rotation of the leg is not limited, as SCFE leads to external rotation of the femoral metaphysis. As well as this, many patients with SCFE prefer to hold the leg in external rotation as this causes less pain.

Reduced internal rotation of the leg in extension is incorrect in this case. Although SCFE causes reduced internal rotation of the leg, the most effective way to asses this would be to flex the hip, as this facilitates internal rotation of the hip, which would be reduced in SCFE. Internal and external rotation of the hip cannot be effectively tested without holding the hip in flexion.

Reduced leg abduction while leg is extended is incorrect in this case. Although restricted abduction of the leg may be seen in SCFE, reduced internal rotation of the leg while the hip is flexed is more strongly associated with SCFE, as SCFE causes displacement of the femoral metaphysis anteriorly and externally rotates it, therefore internal rotation would be more obviously limited.

Question:

You are working the night shift as an F2 on the respiratory ward, caring for a 79-year-old patient with pneumonia. During the ward round, you notice that she has developed a urticarial rash over her lower limbs and abdomen. Review of her notes reveals that overnight she received a dose of amoxicillin. You remember a previous discussion with the patient in which you discovered and documented that she has a penicillin allergy. What should you do?

A.Given that this is not a life-threatening reaction, continue the amoxicillin, closely monitoring the patient's response

B.Stop the amoxicillin, explain what has happened and apologise to the patient

C.Stop the amoxicillin, discuss the error with the patient's family and advise them to make a formal complaint

D.Stop the amoxicillin and report the nurse responsible to the hospital governance board

E.Inform your consultant and ask his opinion on what you should do next

Answer:Stop the amoxicillin, explain what has happened and apologise to the patient

Explanation:

The General Medical Council (GMC) clearly outline the steps that should be followed when an error has been made in 'Good Medical Practice' (2013). These are as follows:

Put matters right (if that is possible).

Offer an apology.

Explain fully and promptly what has happened and the likely short-term and long-term effects.

Although the allergic reaction is not currently life-threatening, it is inappropriate to continue treatment as this could put the patient at a serious risk of harm. Whilst the consultant and nurse involved should be informed, waiting to do this could put the patient at risk of further harm. Informing the family without patient consent breaks confidentiality, and so this is not a suitable response.

References:

General Medical Council. Good Medical Practice. London: General Medical Council, 2013 p. 18.

Question:

You are a foundation doctor working in the emergency department. A senior doctor has seen a child with a severe cough and asks you to go to examine them for your own learning. However, they warn you not to examine this child's throat due to risk of airway obstruction. What is the most likely diagnosis?

A.Pneumonia

B.Bronchiolitis

C.Glandular fever

D.Croup

E.Whooping cough

Answer:Croup

Explanation:

Never perform a throat examination on a patient with croup due to risk of airway obstruction

Important for meLess important

Throat examination is contraindicated in croup due to risk of airway obstruction. The risk is even greater in acute epiglottitis, a rarer condition, but this is not one of the options for this question. Throat examination is not contraindicated in the remaining conditions.

Question:

Which of the following is a not a diagnostic criteria for brain death?

A.No response to sound

B.No corneal reflex

C.Absent oculo-vestibular reflexes

D.No response to supraorbital pressure

E.No cough reflex to bronchial stimulation

Answer:No response to sound

Explanation:

Question:

A 40-year-old man was referred to the hepatology clinic by his GP due to concerns that he was developing chronic liver disease. The patient comments he has been feeling progressively more tired over the past couple of years. He attributes this to not sleeping well as low libido is causing him relationship difficulties with his wife. On examination he has gynaecomastia and palmar erythema. The hepatologist also notes that his skin pigmentation appears grey. Blood tests are requested to investigate the underlying cause.

Bilirubin 18 µmol/L (3 - 17)

ALP 110 u/L (30 - 100)

ALT 220 u/L (3 - 40)

γGT 90 u/L (8 - 60)

Albumin 37 g/L (35 - 50)

Ferritin 1,250 ng/mL (20 - 230)

What treatment that should be offered first?

A.Desferrioxamine

B.Liver transplant

C.Penicillamine

D.Ursodeoxycholic acid

E.Venesection

Answer:Venesection

Explanation:

Venesection is the first line treatment for hereditary haemochromatosis. Desferrioxamine may be used second-line

Important for meLess important

This patient has features consistent with hereditary haemochromatosis. Venesection is the first line treatment for hereditary haemochromatosis and so is the correct answer.

Desferrioxamine is an iron chelator and can be used as a second-line treatment for hereditary haemochromatosis, therefore it is incorrect.

Liver transplantation would be considered as a treatment in advanced cirrhosis or acute liver failure which is not the case for this patient.

Penicillamine is not used in the treatment of hereditary haemochromatosis but is used in the treatment of Wilson's disease.

Ursodeoxycholic acid is also not used in the treatment of hereditary haemochromatosis. It can be used in primary biliary cholangitis where it may improve LFTs.

Question:

A 45-year-old woman presents to the GP with a new rash on her face. On examination, there is a raised purple lesion covering the nose, cheeks and lips. At first, this was diagnosed as rosacea however it has rapidly progressed. The GP also notes axillary and inguinal lymphadenopathy. On further questioning, she notes some fatigue as well as some dyspnoea over the last 6 months. She has smoked 10 cigarettes a day for the last 8 months and drinks 10 units of alcohol a week.

Given the most likely diagnosis, which of the following is associated with her condition?

Asbestos exposure

3%

Foreign travel

6%

Rheumatoid nodules

18%

Raised serum calcium

55%

Finger clubbing

19%

Facial rash plus lymphadenopathy think sarcoidosis

Important for meLess important

This question is asking about a woman presenting with facial rash, lymphadenopathy, dyspnoea and fatigue. If we presume from the description the facial rash is fitting with lupus pernio, this presentation typically matches sarcoidosis.

Asbestos exposure is not associated with sarcoidosis, it is more associated with asbestosis or conditions such as mesothelioma. These do not present in this way.

A history of foreign travel is more associated with tuberculosis than sarcoidosis.

Rheumatoid nodules would be present in cases of rheumatoid arthritis. This would present with bilateral symmetrical joint pain as well as similar constitutional symptoms.

Finger clubbing could be associated with idiopathic pulmonary fibrosis. While this is a cause of dyspnoea and fatigue, it would not cause her rash or lymphadenopathy. Other conditions can include lung cancer which again would present differently.

Question:

You are the FY2 on-call covering the wards and are asked to review a 50-year-old woman who was admitted yesterday with community-acquired right basal pneumonia. She has become more acutely unwell in the last 12 hours with a temperature of 41ºC, blood pressure 156/91 mmHg and heart rate of 140bpm. Clinically, she is jaundiced, agitated, and confused. Her past medical history includes hayfever and Graves' disease; she is otherwise been fit and well at baseline.

Given the most likely diagnosis, which of the following is the most important first-line treatment to initiate for this patient?

A.Lugol's solution (aqueous iodine oral solution)

B.Therapeutic plasma exchange

C.IV propranolol

D.IV antibiotics to cover for biliary sepsis

E.IV atenolol

Answer:IV propranolol

Explanation:

In thyroid storm with IV beta-blockers are a important first-line treatment

Important for meLess important

This patient has a background of Graves' disease and is presenting with signs and symptoms of hyperthyroid crisis - hyperthermia, tachycardia, jaundice, and altered mental status. Thyroid storm is most often seen in thyrotoxic patients with increased physiological demands, such as intercurrent illness (as in this case), trauma, or emergency surgery.

IV propranolol (a non-cardiac specific beta-blocker) is used first-line in the emergency treatment of thyroid storm, and should be instigated immediately to inhibit the peripheral adrenergic effects of excess thyroid hormone, unless contraindicated. Asthma and reversible COPD are contraindications to the use of propranolol, whilst heart failure warrants cautious use.

Lugol's solution can be used in the treatment of thyroid storm, but this is usually delayed until at least an hour (ideally 4h) after antithyroid therapy with propylthiouracil or carbimazole has been initiated. Lugol's solution inhibits the release of stored thyroid hormone from the follicular cells, whilst anti-thyroid therapy prevents the formation of new thyroid hormone.

Patients in hyperthyroid crisis who fail medical therapy can be treated with therapeutic plasma exchange, but this would not be the next immediate step in this patient.

In this case, the patient's jaundice is secondary to her hyperthyroid crisis. There is no history of biliary disease or right upper quadrant pain to support a new diagnosis of biliary sepsis. In any case, this patient would most likely be on IV co-amoxiclav for her community-acquired pneumonia, which would also be the first-line choice of antibiotic in cholecystitis or ascending cholangitis.

If propranolol is contraindicated, a cardiac-specific beta-blocker such as atenolol or metoprolol, or alternatively the calcium-channel blocker diltiazem, can be used. However, this patient has no history of reversible airway disease, and therefore IV propranolol should be used first-line.

Question:

A 61-year-old man presents to his general practitioner for a medication review. Several of his friends have recently been prescribed statins, which he has heard can help to prevent heart disease. The patient wants to know whether he should be taking a statin. Information is gathered about his smoking status and past medical history and a blood test is taken to measure his cholesterol. With this information, the general practitioner calculates his QRISK2 (10-year cardiovascular risk) score.

According to NICE Guidelines, what score would justify the prescription of a statin for this gentleman?

A.>= 5%

B.>= 10%

C.>= 15%

D.>= 20%

E.There is no minimum QRISK2 score for statin prescription

Answer:>= 10%

Explanation:

Statins should be given to patients with a 10-year cardiovascular risk >= 10%

Important for meLess important

NICE recommends that anyone with a 10-year cardiovascular risk of >= 10% should be offered a statin, regardless of cholesterol level.

It is important to note that in practice, not all GPs follow this advice, as the QRISK2 calculator suggests that all males over the age of 65 should be on a statin. Statin prescription should always be a decision that is reached between the physician and the patient. Risk calculations can be useful in guiding this conversation, but do not provide a definitive answer.

Question:

An 82-year-old female is brought to the emergency department with an extremely painful right thigh. She also has an indwelling catheter and has recently attended her GP due to suffering from recurrent urinary tract infections (UTIs). On examination, she is febrile, with extreme tenderness over the right thigh and is unable to move the right knee due to pain. Blood and bone cultures both return a positive finding and a diagnosis of osteomyelitis is made.

What is the likely causative organism?

A.Escherichia coli

B.Haemophilus influenzae

C.Mycobacteria

D.Neisseria gonorrhoeae

E.Staphylococcus aureus

Answer:Staphylococcus aureus

Explanation:

Staphylococcus aureus is the most common cause of osteomyelitis

Important for meLess important

This patient has developed osteomyelitis, likely caused by haematogenous spread from a UTI. The correct answer is Staphylococcus aureus. As bacteria commonly found on the skin, the patients indwelling catheter provided a site of infection from which the bacteria has spread to her femur. Please note, Staphylococcus aureus is by far the most common cause of osteomyelitis as the bacteria expresses receptors on its surface which bind to bone with high affinity.

While this patient has a history of recurrent UTIs, Escherichia coli is unlikely to be the causative organism, as this bacteria does not express receptors which allow it to easily bind to bone.

Haemophilus influenzae and Mycobacteria may cause osteomyelitis, but neither of these are anywhere near as common as Staphylococcus aureus.

Neisseria gonorrhoeae is classically associated with septic arthritis in young adult patients, not osteomyelitis.

Question:

A 28-year-old female sex worker presents to her general practitioner with a sore throat, fever and fatigue which has been going on for two weeks. When examining the throat, the GP notices several white patches on the lateral borders of the tongue as well as the buccal mucosa. These lesions are not painful and had not been noticed by the patient until now. The patches can't be removed by the application of light pressure.

Given the patient's history, what is the most likely cause of the lesions on the tongue?

A.Frictional keratosis

B.Lichen planus

C.Oral candidiasis

D.Oral hairy leukoplakia

E.Squamous cell carcinoma

Answer:Oral hairy leukoplakia

Explanation:

Hairy leukoplakia is an EBV-associated lesion on the side of the tongue, and is considered indicative of HIV

Important for meLess important

The likely diagnosis, in this case, is oral hairy leukoplakia, which is associated with Epstein-Barr virus (EBV) infections. EBV can cause infectious mononucleosis, which classically presents with a sore throat, fever and fatigue. EBV infections in HIV patients can cause oral hairy leukoplakia, which presents with white patches on the tongue, usually on the lateral borders. The patient's social circumstances make her high risk for HIV exposure. These patches are painless or give only mild discomfort, and often go unnoticed. They cannot be removed from the tongue with light pressure. Treatment is non-specific, and the condition usually improves if antiretroviral therapy is started early.

Frictional keratosis is caused by abrasion to the surface of the tongue, either by biting or loose-fitting dental work. The lesions are characteristically more painful and are abrasions as opposed to patches. Treatment involves the removal of the aggravating stimulus.

In HIV-infected individuals, lichen planus can affect the oral mucosa, however, lesions are typically more painful and pruritic (though they can be asymptomatic), with a reticulated pattern. There is also no association with EBV infection, making this a less likely option.

Oral candidiasis is more common in immunocompromised individuals, however, there is no association with EBV infection. The patches may also be lifted off with the application of light pressure. Lesions caused by oral hairy leukoplakia can become infected with Candida, causing diagnostic uncertainty.

Squamous cell carcinomas (SCC) are more likely to present with a non-healing lesion or painful tongue as opposed to asymptomatic white patches. There may also be a history of smoking which is a large risk factor for the development of SCC.

Question:

A patient is recovering in the gastroenterology ward after an upper gastrointestinal variceal bleed. He has ascites and jaundice as a result of a chronic hepatitis C infection. His routine blood tests come back showing impaired renal function. The results are shown below. They were normal 3 days ago when he was admitted. Urinalysis shows no protein or blood.

Na+ 140 mmol/l

K+ 3.8 mmol/l

Urea 11.2 mmol/l

Creatinine 302 µmol/l

Given this man's presentation, what is the most likely diagnosis?

A.Renal calculi

B.Focal segmental glomerulonephritis

C.Type-1 hepatorenal syndrome

D.Type -2 hepatorenal syndrome

E.Minimal change glomerulonephritis

Answer:Type-1 hepatorenal syndrome

Explanation:

Speed of onset can help to differentiate the type of hepatorenal syndrome

Important for meLess important

This question is asking about a patient currently admitted to hospital following an upper GI bleed. The patient is suffering from chronic liver failure and then goes onto develop renal failure. This is the typical history of hepatorenal syndrome.

Hepatorenal syndrome is split into type 1 and 2. Type 1 is a rapid onset hepatorenal syndrome (less than two weeks). This typically occurs following an acute event such as an upper GI bleed. Type 2 is a more gradual decline in renal function and is generally associated with refractory ascites. Therefore as his blood tests were normal 3 days ago this is type 1.

Renal calculi would present with loin to groin pain as well as blood in the urine.

In focal segmental glomerulonephritis or minimal change glomerulonephritis, you would expect to see protein or blood in the urine and their absence helps to rule these out.

Question:

A 50-year-old female attends her general practice due to intermittent haematuria and non-specific lower abdominal pain for the past two weeks. She is otherwise fit and well, and does not take any regular medications. Following a bladder lesion identified on abdominal ultrasound, a flexible cystoscopy was performed. Histological analysis reveals she has carcinoma-in-situ bladder cancer.

Which of the following would be an appropriate treatment regimen for her?

A.Transurethral resection of the superficial lesions

B.Radical cystectomy

C.Watchful waiting

D.Active surveillance

E.Hormone-based therapy

Answer:Transurethral resection of the superficial lesions

Explanation:

Bladder cancer: Carcinoma in situ (CIS) is a high-grade tumour, and treated accordingly

Important for meLess important

Carcinoma in situ (CIS) is a high-grade superficial cancer of the bladder, which is more likely than papillary carcinoma to invade the surrounding structures. Due to the early, but high-grade nature of such cancer, patients are managed by trans-urethral removal of bladder tumour (TURBT) with adjunct intravesicle chemotherapy to reduce the risk of recurrence.

Radical cystectomy is the treatment of choice for invasive bladder cancer.

Due to the invasive potential of CIS, it is not suitable for watchful waiting or active surveillance in healthy patients.

Hormone-based therapies are not utilised in the management of bladder cancer.

Question:

Mr Zhang, a 56-year-old Mandarin-speaking patient, attends with his daughter, who translates for him. He has had reduced hearing and mild discomfort in his left ear for about two weeks which he attributes to an ear infection, and he is asking for antibiotics. He describes the hearing as being a bit muffled, and he hears clicking and popping at times, especially when swallowing. He says he hasn't had a cold recently. He is a current smoker. On examination, the right tympanic membrane appears normal, and the left tympanic membrane looks dull and retracted. The oral cavity looks normal and there are no enlarged cervical lymph nodes.

How should you manage Mr Zhang?

A.Oral or intranasal decongestants for one week

B.Otovent device

C.Routine referral to ENT

D.Two week wait referral to ENT

E.Amoxicillin 500mg TDS for 5 days

Answer:Two week wait referral to ENT

Explanation:

Unilateral middle ear effusion in an adult can be a presenting symptoms of nasopharngeal cancer

Important for meLess important

Two week wait referral to ENT is the correct answer. Unilateral middle ear effusion in an adult can be a presenting symptom of nasopharyngeal cancer, especially in smokers and people of Chinese or South-East Asian origin. A tumour may cause obstruction of the eustachian tube. NICE advises you should consider a two week wait referral for patients of Chinese or South-East Asian origin with unilateral ear effusion, if not associated with an upper respiratory tract infection. A routine referral might be appropriate for a patient with a unilateral effusion which is non-resolving following having a cold (most should self-resolve within six weeks) - use clinical judgement.

Oral or intranasal decongestants or Otovent device are treatments available over the counter for middle ear effusion/eustachian tube dysfunction. They are of uncertain benefit and the priority here is to exclude a nasopharyngeal cancer.

Amoxicillin 500mg TDS for five days would be an appropriate antibiotic prescription for otitis media but this patient doesn't have this. Otitis media presents acutely with marked unilateral otalgia, sometimes fever, with a red tympanic membrane. Most cases of otitis media will actually resolve without the need for antibiotics.

Question:

A 78-year-old woman is admitted to the emergency department following a fall onto her right hip. On examination, she is struggling to walk, she is tender around her right greater trochanter, and her right leg is externally rotated and shortened. She has a background of osteoporosis, hypertension, and hypothyroidism. She can mobilise well with no aids.

An X-ray shows a subtrochanteric femoral fracture. This is subsequently fixed with an intramedullary nail.

What advice should she be given regarding weight-bearing?

A.Avoid weight-bearing for 28 days

B.Weight-bear immediately after the operation as tolerated

C.Avoid weight bearing for 14 days

D.Avoid weight bearing for 72 hours

E.Partial weight-bearing (<50% body weight)

Answer:Weight-bear immediately after the operation as tolerated

Explanation:

A patient with a subtrochanteric femoral fracture fixed with intramedullary nail should weight bear immediately after the operation

Important for meLess important

Weight bear immediately after the operation as tolerated is correct as weight-bearing immediately after intramedullary nails has shown to not cause any adverse effects for healing, and reduces the risk associated with prolonged immobilisation such as a venous thromboembolism (VTE). Additionally, it has been shown that prolonged immobilisation is linked to a decrease in physical function including decreased independent walking and slower walking speed. Early mobilisation aids in reducing this.

Avoid weight-bearing for 28 days is incorrect, staying immobile for this amount of time would increase the risk of complications such as VTE and risk a decline in physical function.

Avoid weight-bearing for 72 hours is incorrect, as staying immobile for this amount of time would increase the risk of complications such as VTE and risk a decline in physical function.

Partial weight-bearing (<50% body weight). This is incorrect as although it is better than not weight-bearing at all, it would still be better to fully weight bear.

Question:

Tommy is a 5-year-old boy who has been brought in to see you by his mother. She explains that Tommy has had a fever for 3 days and yesterday developed some ulcers in his mouth. Today, she noticed that there are red spots on Tommy's hands and feet which have now started to concern her.

Out of the following, which virus is most likely the causes of Tommy's symptoms?

A.Coxsackie virus

B.Human herpes virus

C.Parainfluenza virus

D.Varicella zoster virus

E.Parvovirus B19

Answer:Coxsackie virus

Explanation:

Hand, foot and mouth disease is characterised by mild systemic upset, oral ulcers followed by vesicles on the palms and soles

Important for meLess important

Hand, foot, and mouth disease (HFMD) is an acute viral illness characterized by vesicular eruptions in the mouth and papulovesicular lesions of the distal limbs. It is most commonly due to Coxsackie A16 virus, although other group A and B Coxsackie viruses may be causative. Less commonly, but more seriously, it can be caused by enterovirus 71.

Human herpesvirus (HHV) 6 is the virus implicated in roseola which is a common and contagious viral infection that most commonly affects children between 6 months and 2 years old. It's also known as sixth disease, exanthema subitum, and roseola infantum. It is usually marked by several days of high fever, followed by a distinctive rash just as the fever breaks.

Parainfluenza virus is the most common cause of croup, also known as laryngotracheobronchitis, which characteristically produces a 'barking cough'.

Varicella-zoster virus causes chicken pox, which results an itchy rash with small, fluid-filled blisters and is highly contagious.

Parvovirus B19 is implicated in fifth disease, also known as slapped cheek syndrome which is a viral illness that often results in a red rash on the arms, legs, and cheeks.

Question:

A 12-hour-old baby examined on the ward following routine delivery with no complications. The mother reports no concerns so far.

On examination, he appears well. The doctor notices a soft, non-tender swelling of the left hemi-scrotum. It is anterior to and below the testicle; he is able to 'get above' it when palpating. It is transilluminable. Both testicles appear normal.

Given the likely diagnosis, what is the most appropriate next step?

A.Aspiration

B.Reassure and monitor

C.Routine surgical referral

D.Ultrasound scan

E.Urgent surgical referral

Answer:Reassure and monitor

Explanation:

Communicating hydroceles are common in newborn males (clinically apparent in 5-10%) and usually resolve within the first few months of life

Important for meLess important

The diagnosis here is that of hydrocele. These are common in newborn males (clinically obvious in 5-10%) and usually resolve themselves within a few months. As such, given the lack of any untoward features, and that it is a clinical diagnosis, the best advice is to reassure the mother and monitor for resolution.

Aspiration is an alternative for adults who are poor surgical candidates. In a newborn, however, this would not be appropriate.

A routine surgical referral would not be appropriate at this stage. If it has not resolved within a few months, this would be warranted.

An ultrasound scan is not necessary here - the testicles are clearly palpable and so this is a clinical diagnosis. If there was any uncertainty, or they were difficult to palpate, a scan would be wise.

An urgent surgical referral is not necessary - the neonate is well and the hydrocele will most likely resolve within a few months.

Question:

A 60-year-old man presented to the hospital for his elective inguinal hernia. He is a known diabetic and takes metformin once daily. His blood glucose has been well controlled. His surgery is listed in the morning. He would like to know what to do with his medication before his surgery.

What is the following advice is correct?

A.Halve the dose of metformin the day before surgery

B.Omit metformin the day before surgery

C.Halve the dose of metformin the day of surgery

D.Continue metformin as normal the day before surgery

E.Start variable rate intravenous insulin infusion (VRIII)

Answer:Continue metformin as normal the day before surgery

Explanation:

All oral antidiabetic medications should be taken as normal the day before surgery

Important for meLess important

Continue metformin as normal the day before surgery is correct. For patients with diabetes – an increased risk of post-operative infection and delayed wound healing due to poor glycaemic control if omitted. It also increased the risk of lactic acidosis if continued. Potential for hypoglycaemia when taken concomitantly with other blood glucose-lowering medicines and continued during nil by mouth period.

Halve the dose of metformin the day before surgery is incorrect. It increases the risk of post-operative infection and delayed wound healing due to poor glycaemic control if omitted. For major surgery, Metformin should be stopped on the day of surgery and recommenced if serum creatinine level does not deteriorate post-operatively. Metformin need not be stopped for minor surgery.

Omit metformin the day before surgery is incorrect. The plasma half-life of metformin is approximately 2-6 h, but other compartments, such as erythrocytes and the gastrointestinal tract and most likely enterocytes, contribute to a slower half-life for elimination of up to 14 h. Omitting the day before surgery will have no effect on the surgery and increases the risks of poor glycaemic control and may result in a delay in surgery.

Halve the dose of metformin the day of surgery is incorrect. It increases the risk of post-operative infection and delayed wound healing due to poor glycaemic control if the dose is reduced.

Start variable rate insulin infusion is incorrect. Patients with a planned short starvation period (no more than one missed meal in total) should be managed by modification of their usual diabetes medication, avoiding VRIII wherever possible (although VRIII may be necessary if emergency surgery or in people with poorly controlled diabetes (HbA1c >69mmol/mol)). Patients with type 2 diabetes who are expected to miss more than one meal should have VRIII if they develop hyperglycaemia (capillary blood glucose >12mmol/L).

Question:

A 20-year-old man is admitted to the Emergency Department with chest pain. He confides that he has snorted 'a large amount' of cocaine in the previous hours. Which one of the following features is his cocaine use most likely to cause?

A.Hypokalaemia

B.Hyperthermia

C.Decreased deep tendon reflexes

D.Hypotension

E.Metabolic alkalosis

Answer:Hyperthermia

Explanation:

Question:

A 77-year-old woman presents for her cardiology follow-up. She has a longstanding history of heart failure and atrial fibrillation and was commenced on amiodarone 5 months ago. The patient is feeling well and denies palpitations, chest pain or breathlessness, but does note that she has been feeling more fatigued lately. She denies any other new symptoms.

Thyroid function tests are sent, which return as follows:

Thyroid-stimulating hormone (TSH) 11 mU/L (0.5-5.5)

Free thyroxine (T4) 7 pmol/L (9.0 - 18)

What is the most appropriate step in her management?

A.Continue amiodarone and monitor TFTs 6-monthly

B.Continue amiodarone and start levothyroxine

C.Stop amiodarone and refer to endocrinology

D.Stop amiodarone and repeat TFTs in 6 weeks

E.Stop amiodarone and start levothyroxine

Answer:Continue amiodarone and start levothyroxine

Explanation:

In amiodarone induced hypothyroidism, amiodarone can be continued with levothyroxine

Important for meLess important

Continue amiodarone and start levothyroxine is correct.These thyroid function tests show that the patient is hypothyroid, which is likely causing her fatigue. Her T4 is low and her TSH (thyroid-stimulating hormone) is raised, showing that, through negative feedback, the pituitary gland is trying to increase T4 production. Around 1 in 6 patients taking amiodarone will develop thyroid dysfunction, which is thought to be related to the high iodine content of amiodarone. This can be in the form of hypothyroidism or hyperthyroidism. Whilst patients who develop hyperthyroidism with amiodarone should ideally stop amiodarone, those who develop hypothyroidism can continue amiodarone with levothyroxine to manage the hypothyroidism. This is because the risks associated with stopping amiodarone (e.g. the risk of stroke) outweigh the risks of taking levothyroxine for hypothyroidism induced by it.

Continue amiodarone and monitor TFTs 6-monthly is incorrect. In the first few months of amiodarone therapy, there may be a transient rise in TSH levels that may be managed with observation and monitoring. However, this patient is now well-established on amiodarone and has raised TSH levels along with low T4 levels and symptoms of hypothyroidism (fatigue). This means she is clinically hypothyroid and requires treatment with levothyroxine to improve her symptoms.

Stop amiodarone and refer to endocrinology is incorrect. Hypothyroidism is a common side effect of amiodarone treatment and there are established guidelines for managing this. Most patients can remain on amiodarone if desired and receive replacement levothyroxine, as per patients with other causes of hypothyroidism. Stopping amiodarone is typically not ideal, as this will increase the chance of the patient reverting to atrial fibrillation and hence increase the risk of stroke.

Stop amiodarone and repeat TFTs in 6 weeks is incorrect. Most patients who develop hypothyroidism with amiodarone will return to euthyroid in 3-6 months (rather than 6 weeks) with the withdrawal of amiodarone. However, it is well-established that amiodarone is often a critical drug, and should only be withdrawn in this case if it is not providing benefit to the patient. Stopping amiodarone is not necessary for this patient.

Stop amiodarone and start levothyroxine is incorrect. As discussed, stopping amiodarone is not necessary (unless there are other clinical indications to stop it) and could be dangerous for the patient. Stopping amiodarone is, however, usually necessary for patients who develop thyrotoxicosis with amiodarone. In this case, the thyroid function tests would show low TSH and raised T4.

Question:

A 34-year-old woman presents to the GP with night sweats and fever. On further questioning, the GP notes that the woman is suffering from both fever and chills and that they have been on and off for alternate days. She also notes muscle aches and a headache.

On examination, she has a temperature of 39ºC and mild hepatomegaly. She also mentions that she returned from Haiti 4-weeks ago where she did some voluntary work.

Given her presentation what is the most likely diagnosis?

A.Hepatitis B

B.Typhoid fever

C.Dengue fever

D.Viral haemorrhagic fever

E.Malaria

Answer:Malaria

Explanation:

Fever on alternating days, think malaria

Important for meLess important

This question is asking about a woman presenting fever (alternating on and off between days), headache, myalgia, hepatomegaly and a history of foreign travel. These are all part of the typical history of malaria.

Acute hepatitis B infection most commonly presents with anorexia, nausea and right upper quadrant pain. There may or may not be a fever and it would not present with the alternating fever like this lady did. While she also has hepatomegaly, this can be caused by many things and not just hepatitis.

Typhoid fever classically presents with 4 phases. Starting with week one the patient will have a dry cough, fever, epistaxis and malaise. Again this does not fit with this patients pattern of fever.

Dengue fever has an incubation period of 4-10 days and thus would have presented before this. It then has 3 phases, a febrile phase, a critical phase (including abdominal pain, vomiting and tachypnoea) and then finally a recovery phase.

Viral haemorrhagic fever can also present with fever and non-specific flu-like symptoms. However, it does not typically cause hepatomegaly and does not cause this pattern of fever.

Question:

A 19-year-old male student from Egypt presents to the emergency department with a 4-day history of increasing lethargy and reduced exercise tolerance. He also reports dark urine. These symptoms started 2 days after he finished a course of antibiotics for a lower respiratory tract infection.

On examination, you notice yellow sclerae bilaterally. His abdomen is soft and non-tender, respiratory and neurological examinations are unremarkable, cardiac examination shows sinus tachycardia of 110 beats/min.

His blood test results are as follows:

Hb 89 g/L (135-180)

Platelets 450\* 109/L (150 - 400)

WBC 12 \* 109/L (4.0 - 11.0)

Bilirubin 65 µmol/L (3 - 17)

ALP 90 u/L (30 - 100)

ALT 33 u/L (3 - 40)

Albumin 40 g/L (35 - 50)

Na+ 140 mmol/L (135 - 145)

K+ 5 mmol/L (3.5 - 5.0)

Urea 6 mmol/L (2.0 - 7.0)

Creatinine 110 µmol/L (55 - 120)

Reticulocytes 4 % (0.5 - 1.5)

Blood film Heinz bodies

What is the causative antibiotic?

A.Ceftriaxone

B.Clarithromycin

C.Ciprofloxacin

D.Co-amoxiclav

E.Doxycycline

Answer:Ciprofloxacin

Explanation:

Ciprofloxacin is contraindicated in G6PD deficiency

Important for meLess important

Glucose-6-phosphate dehydrogenase (G6PD) deficiency is the commonest red blood cell enzyme defect. It is more common in people from the Mediterranean and Africa and is inherited in an X-linked recessive fashion.

The patient has clinical and biochemical features suggestive of haemolytic anaemia related to G6PD deficiency caused by the antibiotic he received recently. Heinz bodies - small round inclusions within red blood cells composed of denatured haemoglobin - are characteristically seen on blood film in this condition.

Of the given options, only ciprofloxacin is a known cause of haemolysis in G6PD deficiency.

The other options listed in this question - penicillins, cephalosporins, macrolides and tetracyclines - are safe in G6PD deficiency.

Question:

A 23-year-old woman who is 24 weeks pregnant presents to the emergency department with a 48-hour history of epigastric pain and severe headache, that has increased in severity. On examination, she has a heart rate of 110 beats/min, a respiratory rate of 21 /min, a temperature of 36.8ºC, mild pitting oedema of the ankles and brisk tendon reflexes.

Given the likely diagnosis of pre-eclampsia, what is the most important sign to elicit?

A.Heart rate 110/min

B.Respiratory rate 21/min

C.Oedema

D.Temperature 36ºC

E.Brisk tendon reflexes

Answer:Brisk tendon reflexes

Explanation:

Brisk reflexes are commonly associated with pre-eclampsia and are more specific than the other answers, which are general clinical signs.

Question:

A 15-year-old girl presents with a palpable purpuric rash over her lower limbs accompanied by polyarthralgia following a recent sore throat. What is the most likely diagnosis?

A.Rubella

B.Measles

C.Erythema multiforme

D.Idiopathic thrombocytopenic purpura

E.Henoch-Schonlein purpura

Answer:Henoch-Schonlein purpura

Explanation:

Henoch-Schonlein purpura classically presents with abdominal pain, arthritis, haematuria and a purpuric rash over the buttocks and extensor surfaces of arms and legs

Important for meLess important

Question:

A 10-month male infant is brought to the GP by his mother with concerns over using his right hand in preference to the left. He was born via vaginal delivery complicated by shoulder dystocia. He is up to date with vaccinations.

What is the appropriate management for this patient?

Reassurance

13%

Refer to physiotherapy

10%

Refer urgently to the paediatrician

64%

Request a shoulder X-ray

7%

Review in 2 months

6%

Hand preference before 12 months is abnormal - it could be an indicator of cerebral palsy

Important for meLess important

Refer to the paediatrician is correct. This boy is presenting with early hand preference which points toward cerebral palsy causing weakness to the left side of the body.

Reassurance is incorrect. Hand preference before the age of 12 months is abnormal and needs to be investigated.

Refer to physiotherapy is incorrect. This boy needs to be investigated for cerebral palsy. Although physiotherapy is an integral part of managing cerebral palsy, a referral now is inappropriate as a proper diagnosis has not been made yet.

Request a shoulder X-ray is incorrect. This boy's main issue is early hand preference; there is no mention of trauma, and the history of shoulder dystocia is irrelevant here as it usually causes Erb's palsy where the arm hangs limply from the shoulder with flexion of the wrist and fingers due to weakness of muscles innervated by cervical roots C5 and C6.

Review in 2 months is incorrect. There is no point in delaying investigations given the differential diagnosis of cerebral palsy. Reviewing this boy in 2 months would not aid the diagnosis.

Question:

A 65-year-old male presents with bilateral ankle swelling. He denies any shortness of breath. Physical examination of his chest was unremarkable. His past medical history includes hypertension, diabetes and angina.

Which of the following medications are the most likely cause of his symptoms?

A.Amlodipine

B.Metformin

C.Empagliflozin

D.Furosemide

E.Verapamil

Answer:Amlodipine

Explanation:

Dihydropyridines (e.g. amlodipine) are more likely to cause ankle swelling than verapamil

Important for meLess important

Amlodipine is a dihydropyridine calcium channel blocker and ankle swelling is a well known side effect.

Metformin and empagliflozin used in diabetes are not known to cause ankle oedema. Thiazolidinediones (e.g. pioglitazone), however, are known to cause fluid retention.

Furosemide is a loop diuretic that is used for treating ankle oedema that is secondary to fluid overload.

Verapamil is a non-dihydropyridine calcium channel blocker and is much less associated with ankle swelling. Common side effects include bradycardia and constipation.

Question:

A 55-year-old woman is scheduled for an elective total hip replacement in 4 months time. She has a past medical history of troublesome menopausal symptoms, hypothyroidism and hypertension. Her currently prescribed medications are Femoston (estradiol and dydrogesterone), levothyroxine, labetalol and amlodipine.

What advice should be given to her regarding her medications before the surgery?

A.No change necessary

B.Replace labetalol with ramipril 2 weeks before surgery

C.Stop amlodipine the morning of surgery

D.Stop Femoston 4 weeks before surgery

E.Stop levothyroxine 1 week before surgery

Answer:Stop Femoston 4 weeks before surgery

Explanation:

Advise women to stop taking their COCP/HRT 4 weeks before surgery

Important for meLess important

Women who take hormone replacement therapy, such as Femoston, should stop taking it 4 weeks before any elective surgeries due to increase in venous thromboembolism risk.

No change necessary is not correct as she should stop taking Femoston 4 weeks before the surgery.

Replacing labetalol with ramipril 2 weeks before surgery is not correct as labetalol, and all beta-blockers, are safe to continue to take before and on the day of surgery and does not need to be replaced.

Stopping amlodipine the morning of surgery is not correct as amlodipine, and all calcium channel blockers, are safe to take before and on the day of surgery.

Stopping levothyroxine 1 week before surgery is not correct as levothyroxine is safe to take before and on the day of surgery.

Question:

A 40-year-old man presents to a routine surgery appointment with longstanding fatigue and indigestion. He is belching at night and complains of severe constant bloating. He denies any change to his bowel habit and has no rectal bleeding. You note mild conjunctival pallor and a mildly distended abdomen on examination. A rectal examination is normal.

What would be the most common underlying diagnosis?

A.Bowel cancer

B.Coeliac disease

C.Gastro-oesophageal reflux

D.Inflammatory bowel disease

E.Myelodysplastic syndrome

Answer:Coeliac disease

Explanation:

Coeliac disease may present insidiously with fatigue and non-specific GI symptoms

Important for meLess important

Coeliac disease - this is the correct answer. Of course, bowel cancer should be kept in mind with appropriate screening using a faecal immunochemical test (FIT), blood testing, and/or colonoscopy should be carried out in the presence of clinical suspicion or red flag symptoms. However, coeliac disease is the most likely underlying disease. It is a relatively common gastrointestinal autoimmune disease. Common symptoms include persistent or unexplained gastrointestinal upset including nausea and vomiting, prolonged fatigue, recurrent abdominal pain, cramping, distension, unexplained iron-deficiency anaemia, or other unspecified anaemia.

Bowel cancer - this is incorrect. Although bowel cancer is an important diagnosis to rule out, none of the red flag symptoms or signs is present in the stem. His age is also a factor and NICE only considers those 50 and over for abdominal pain, 55 and over with new dyspepsia, and 60 and over for iron deficiency anaemia for a 2-week wait referral. Bowel cancer is less common than coeliac, but it is an important differential to keep in mind. For these reasons, it is not the most common underlying diagnosis.

Gastro-oesophageal reflux - this is incorrect. Although people can present with indigestion, belching, and bloating, it would be rare to cause fatigue or anaemia (conjunctival pallor). Therefore, coeliac is a more likely cause of his symptoms.

Inflammatory bowel disease - this is incorrect. There are no telltale signs of inflammatory bowel such as rectal bleeding, mucus, frequent defecation, or associated illness like uveitis or arthritis. Inflammatory bowel disease is also much less common than irritable bowel.

Myelodysplastic syndrome - this is incorrect. There are different types of myelodysplastic syndromes which are a form of blood cancer. Some of these syndromes are mild for many years and some are more severe. They can affect people of any age but myelodysplasia is most common in adults over 70 years. Common symptoms include fatigue, weight loss, easy bruising, and infection.

Question:

You are a general practitioner. Your patient, Miss Ramsden, had her first seizure two days ago. You tell her she must stop driving and that you need to inform the Driver and Vehicle Licensing Authority (DVLA). Miss Ramsden becomes very annoyed. She refuses to stop driving and does not want you to inform the DVLA. Miss Ramsden believes her medical information should be kept confidential. What is the most appropriate course of action?

A.Discuss the situation with another colleague

B.Respect the patient's confidentiality and agree to not inform the DVLA

C.Only inform the DVLA if the patient has another seizure

D.Inform the DVLA after the patient has been followed up in neurology

E.Inform the DVLA straight away

Answer:Inform the DVLA straight away

Explanation:

The GMC guidelines state that:

'Confidential medical care is recognised in law as being in the public interest. However, there can also be a public interest in disclosing information: to protect individuals or society from risks of serious harm'

There is a risk to public safety if Miss Ramsden were to have a seizure while driving a car. Therefore the DVLA need to be informed against her wishes, especially because she is refusing to stop driving.

Reference: http:www.gmc-uk.org/guidance/ethicalguidance/28432.asp

Question:

A 20-year-old man has recently been diagnosed with an autosomal dominant condition resulting from a pathogenic variant in the FBN1 gene on chromosome 15. He is particularly tall and slender, with highly flexible joints, and also presents with an indented chest wall.

He asks his specialist if he is at particularly high risk of developing any conditions.

Given the likely diagnosis, which of the following conditions is this patient at the highest risk of developing?

A.Downwards lens dislocation

B.Hypermetropia

C.Infective endocarditis

D.Pneumothorax

E.Tricuspid stenosis

Answer:Pneumothorax

Explanation:

Marfan's syndrome is associated with repeated pneumothoraces

Important for meLess important

The correct answer is pneumothorax. This patient has Marfan's syndrome, as evidenced by his tall and slender frame, hypermobility, pectus excavatum, and autosomal dominant pathogenic variant in the FBN1 (fibrillin) gene. Patients with Marfan’s syndrome are at a higher risk of developing repeated pneumothoraces. Patients with Marfan’s syndrome are more likely to develop subpleural bullae, which in conjunction with rib cage abnormalities, can increase the risk of developing pneumothoraces.

Downwards lens dislocation is incorrect. Marfan’s syndrome patients are more likely to experience an upwards lens dislocation; a downwards dislocation can occur in conditions such as homocystinuria, as well as trauma.

Hypermetropia is incorrect. Patient’s with Marfan’s syndrome are more likely to develop myopia.

Infective endocarditis is incorrect. There is no increased risk of developing infective endocarditis with Marfan’s syndrome. The risk of other cardiological abnormalities, such as aortic root dilatation, is however raised.

Tricuspid stenosis is incorrect. Rarely, tricuspid valve disease can occur in Marfan’s syndrome, but is rarer than aortic and mitral valve disease. However, tricuspid stenosis is not what this patient is at the highest risk of developing.

Question:

A 26-year-old Caucasian male is on the general surgical ward. Three days post-operatively, he has been complaining of sudden onset of shortness of breath and a dry cough. He has a body mass index of 36kg/m² and is still using his Patient Controlled Analgesia (PCA) for pain relief. His arterial blood gas results are as follows:

Normal range

pH: 7.47 (7.35 - 7.45)

pO2: 7.8 (10 - 14)kPa

pCO2: 3.8 (4.5 - 6.0)kPa

HCO3: 22 (22 - 26)mmol/l

BE: -1 (-2 to +2)mmol/l

Based on this information provided, which of the following conditions is his most likely diagnosis?

A.Obesity hypoventilatory (Pickwickian) syndrome

B.Opiate toxicity while using his PCA

C.Pulmonary hypertension

D.Hospital Acquired Pneumonia

E.Pulmonary embolism

Answer:Pulmonary embolism

Explanation:

The clues are in the history. Pulmonary embolism is the most likely diagnosis due to a history of sudden onset of shortness of breath. Take a full history and examination. If this patient was pyrexic, it will point more towards pneumonia. However, a mild pyrexia may occur in pulmonary embolism too.

Question:

A 64-year-old man with known polycythaemia rubra vera presents with increasing lethargy over the past month.

A full blood count is performed:

Hb 90 g/L Male: (135-180)

Platelets 95 \* 109/L (150 - 400)

WBC 20.1 \* 109/L (4.0 - 11.0)

A blood film is requested and the medical team discuss with haematology regarding a bone marrow biopsy.

Which complication of polycythaemia rubra vera is the patient most likely to be experiencing?

A.Transformation to acute lymphoblastic leukaemia

B.Transformation to acute myeloid leukaemia

C.Transformation to chronic lymphocytic leukaemia

D.Transformation to chronic myeloid leukaemia

E.Transformation to diffuse large B cell lymphoma

Answer:Transformation to acute myeloid leukaemia

Explanation:

Polycythaemia rubra vera - around 5-15% progress to myelofibrosis or AML

Important for meLess important

The answer is transformation to acute myeloid leukaemia. The most common transformation of polycythaemia rubra vera (PCV) is to myelofibrosis or acute myeloid leukaemia.

Acute myeloid leukaemia may present over weeks with progressive lethargy and exertional breathlessness due to anaemia. Some patients present with acute infection due to lack of mature, functioning neutrophils. Some patients will have petechiae due to thrombocytopenia. Leukemias with predominant monocytes may present with signs of extramedullary organ infiltration e.g. gingival hypertrophy. Patients with acute promyelocytic leukemia (APML) often have disseminated intravascular coagulation. Bone marrow biopsy will confirm the diagnosis.

Polycythaemia rubra vera may transform to myelofibrosis and this may be difficult to distinguish from acute myeloid leukaemia without a bone marrow biopsy. Bone marrow biopsy will demonstrate fibrosis. Myelofibrosis was not given as an option.

Polycythaemia rubra vera does not typically transform to acute lymphoblastic leukaemia, chronic lymphocytic leukaemia or chronic myeloid leukaemia.

Acute lymphoblastic leukaemia is the most common leukaemia of childhood. Chronic lymphocytic leukaemia may transform into acute lymphoblastic leukaemia but this is very rare.

Chronic myeloid leukaemia (CML) may transform into an acute myeloid leukaemia but transformation from PCV to CML is not described.

Transformation to diffuse large B cell lymphoma may occur in B cell chronic lymphocytic leukaemia (CLL) or hairy cell leukaemia (Richter's transformation).

Question:

A 60-year-old male is admitted to the surgical ward for observation following a head injury. Lab results reveal the following:

Na+ 121 mmol/l

K+ 3.0 mmol/l

Urine osmolality 588 mOsmol/kg (50-1200mOsmol/kg)

Serum osmolality 240 mOsmol/kg (275-290mOsmol/kg)

On examination, he is well hydrated with moist mucus membranes. What is the most likely cause of hyponatraemia in this case?

A.Syndrome of inappropriate anti diuretic hormone (SIADH)

B.Addison's disease

C.Diabetes insipidus

D.Spironolactone

E.Cerebral salt wasting

Answer:Syndrome of inappropriate anti diuretic hormone (SIADH)

Explanation:

SIADH and cerebral salt wasting are differentiated by fluid status

Important for meLess important

Hypotonic hyponatraemia can can be caused by three scenarios:

The retention of pure water, as seen in SIADH. This causes euvolaemic hyponatraemia.

The retention of sodium, but accompanied by an even greater retention of water. This is is caused by liver failure, heart failure and nephrotic syndrome. Fluid leaks out of the vascular space as a result of increased hydrostatic pressure (heart failure) or reduced osmotic pressure (liver failure, nephrotic syndrome). This causes a reduction in blood pressure and subsequent activation of the rennin-angiotensin-aldosterone system with retention of sodium and water. This is hypervolaemic hyponatraemia.

The loss of water, but accompanied by an even greater loss of sodium. This is caused by diarrhoea, vomiting, diuretics and cerebral salt wasting.

Spironolactone and addison's disease would cause a raised potassium in conjunction with a low sodium.

In diabetes insipidus there is loss of free water only and this would not cause hyponatraemia.

SIADH and cerebral salt wasting can both be caused by head injury, but because this patient is euvolaemic, SIADH is the most likely diagnosis.

Question:

A 6-year-old boy presents to the emergency department with a rash. His parents deny any trauma and are not known to social services. He has had a recent coryzal illness which resolved without intervention.

The child has no past medical history. He was born at term via vaginal delivery. He has reached all developmental milestones and is up-to-date with vaccinations.

On examination, there is a petechial rash on the child's legs. He looks otherwise well with no other signs of bleeding.

His blood tests:

Hb 145 g/L Male: (135-180)

Platelets 29 \* 109/L (150 - 400)

WBC 7.2 \* 109/L (4.0 - 11.0)

What is the indicated management?

A.IV corticosteroid

B.IV immunoglobulin

C.None

D.Oral corticosteroid

E.Platelet transfusion

Answer:None

Explanation:

Children with immune thrombocytopenia: no treatment is usually required for children with petechia/purpura only and no significant bleeding

Important for meLess important

None is the correct answer as there are no signs of bleeding on examination. This child does not require any further medical management for his idiopathic thrombocytopenic purpura (ITP) as the platelet count is not less than 10 and no active bleeding, so in this well, patient cohort 80% have full resolution of the ITP with or without treatment. Advice to avoid any trauma is crucial.

Oral corticosteroid is an incorrect answer because this is not indicated for immunosuppression in a child who is not actively bleeding and the platelet count will recover in the majority of cases.

IV corticosteroid is incorrect as per the oral corticosteroid explanation the child will most likely recover spontaneously without requiring the risks of using non-specific immunosuppressants.

IV immunoglobulin is an incorrect option. This is because the child is well, with no signs of active or previous bleeding and the platelet count is sufficient.

Platelet transfusion is incorrect as this is only indicated with active bleeding, and has limited efficacy in ITP as the circulating antibodies quickly destroy the transfused platelets.

Question:

A 24-year-old male is admitted with acute severe asthma. Treatment is initiated with 100% oxygen, nebulised salbutamol and ipratropium bromide nebulisers and IV hydrocortisone. Despite initial treatment there is no improvement. What is the next step in management?

A.IV aminophylline

B.IV magnesium sulphate

C.IV salbutamol

D.Non-invasive ventilation

E.IV adrenaline

Answer:IV magnesium sulphate

Explanation:

Current guidelines do not support the routine use of non-invasive ventilation in asthmatics.

Question:

A 28-year-old man is seen in Colorectal Clinic with a 4-week history of pain around the anus when sitting and when opening his bowels. He has a history of Crohn's disease and bipolar disorder.

On examination, a fistula tract is visible. The patient is stable and no signs of infection are present.

What would be the most appropriate investigation to guide management?

A.Colonoscopy

B.Erythrocyte sedimentation rate

C.MRI pelvis

D.Stool culture

E.Wound swab

Answer:MRI pelvis

Explanation:

MRI is the investigation of choice for suspected perianal fistulae in patients with Crohn's

Important for meLess important

MRI pelvis is the gold-standard investigation for perianal fistulae in patients with Crohn's disease. This will enable visualisation of the course of the tract and can be used to plan surgical management.

Colonoscopy would not be used in the assessment of a perianal fistula. A colonoscopy can be used in the assessment of Crohn's disease in general, but will not provide further information about perianal fistulae.

Erythrocyte sedimentation rate (ESR) is non-specific test for inflammation. It measures the time it takes for coagulated red blood cells to settle in the bottom of a tube. ESR can be used to assess disease activity in Crohn's disease, however, it would not be useful in assessing a perianal fistula.

A stool culture would not aid in the assessment of a perianal fistula. It can be useful for patients with Crohn's disease who have been treated with antibiotics to rule out Clostridium difficile infection.

A wound swab would only be necessary if the patient was getting recurrent abscesses without a fistula being identified or if they had a risk factor for one of the rarer causes of anorectal abscesses such as HIV. In this case, the wound could be swapped to rule out tuberculosis or actinomycosis infection.

Question:

During a subfertility clinic you are asked to take a menstrual cycle history from a 30-year-old in order to establish on what day her mid-luteal progesterone level needs to be done. You clarify that the woman has a regular 35 day cycle. On which day would you carry out mid-luteal progesterone level?

A.Day 18

B.Day 21

C.Day 28

D.Day 30

E.Day 35

Answer:Day 28

Explanation:

The correct answer here is on Day 28 - this is 7 days before the end of the lady's regular cycle when progesterone levels should be tested.

An individual who has a normal 28-day cycle would be tested on Day 21.

Regardless of the length of the individual's menstrual cycle - the progesterone levels should be carried out 7 days before the end of the cycle, so will, therefore, vary from individual to individual.

As per NICE guidelines; a history of a women's menstrual cycle should be taken to establish whether they are having a regular menstrual period. Women who are having regular monthly cycles should be informed that they are likely to be ovulating, but this will be checked with a mid-luteal serum progesterone level.

Question:

A 26-year-old woman has been referred to the dermatology clinic with a 4-week history of skin rash.

Past medical history includes mild asthma. Regular medications include folic acid 400micrograms OD and over-the-counter vitamin supplements due to pregnancy.

She feels well in herself but states she had a mild cold when the lesions first developed.

On examination, she has multiple, discrete, raised erythematous lesions on the arms and legs ranging from 8cm in diameter to 12cm in diameter. There is pain on active and passive joint movement.

What is the likely diagnosis?

A.Erythema ab igne

B.Erythema marginatum

C.Erythema migrans

D.Erythema multiforme

E.Erythema nodosum

Answer:Erythema nodosum

Explanation:

Erythema nodosum may be caused by pregnancy

Important for meLess important

The above scenario holds multiple crucial pieces of information that combined give the correct answer of erythema nodosum. Erythema nodosum typically lasts for 4-6 weeks, can develop after a flu-like illness, is associated with multiple erythematous lesions affecting the limbs, and is associated with pregnancy. Lesions are often nodular and tender, and the rash is self-terminating. It is often accompanied by arthralgia.

Erythema ab igne is a reticulated rash caused by over-exposure to infrared radiation. It commonly occurs in people with high levels of exposure to heat such as fireplaces and hot water bottles. It is not associated with recent illness and there are no discrete lesions.

As with erythema nodosum, erythema marginatum is a skin rash that commonly affects the limbs. However, the lesions are typically circular with a raised outer area and pale center and also affect the torso. It is associated with multiple conditions, most commonly rheumatic fever and group A Streptococcus. It is not associated with pregnancy.

Erythema migrans is the classic Lyme disease rash appearing in 80% of Lyme disease cases. It appears as a 'bull's eye' rash with a red outer circle, pale inner circle, and red center.

An erythema multiforme rash initially appears as red patches on the hands before progressing to target lesions. It is associated with many infections including bacterial, viral, and fungal, and is thought to be an immune-mediated reaction.

Question:

Which of the features below, following a head injury, is not an indication for an immediate CT head scan in children?

A.Drowsiness

B.A single, discrete episode of vomiting

C.A 9 month old child with a 6cm haematoma on the head

D.Numb left arm

E.Suspicion of a non accidental head injury

Answer:A single, discrete episode of vomiting

Explanation:

Whilst not an indication for immediate CT there should be a low threshold for admission and observation.

Question:

A 28-year-old woman is brought to the emergency department by her friend. The patient does not engage with you, however, the friend states that the patient had an argument with her partner 3 hours ago and has since taken at least 6 full packets of aspirin, reportedly with the intention of ending her life. This is not the first time the patient has displayed suicidal ideation.

In addition to other investigations, a venous blood gas is taken at presentation, and also at 12 hours following presentation.

Which pattern of acid-base abnormalities would be present in this patient at presentation (t=0), and after 12 hours (t=12)?

A.t=0: metabolic acidosis, t=12: metabolic acidosis

B.t=0: metabolic acidosis, t=12: respiratory alkalosis

C.t=0: respiratory acidosis, t=12: metabolic alkalosis

D.t=0: respiratory alkalosis, t=12: metabolic acidosis

E.t=0: respiratory alkalosis, t=12: respiratory alkalosis

Answer:t=0: respiratory alkalosis, t=12: metabolic acidosis

Explanation:

Salicylate poisoning first causes respiratory alkalosis

Important for meLess important

This patient is likely to be suffering from aspirin (salicylate) poisoning. Firstly, it is important in potential overdose patients that the clinician considers that the patient may have consumed a greater quantity of aspirin than reported. They may have also consumed other substances in addition to aspirin. Broad toxicological workup including a salicylate level, paracetamol level, and urine toxicological screen would be required, in addition to standard care.

An overdose of salicylates such as aspirin first causes respiratory alkalosis, followed by metabolic acidosis. This is due to a biphasic response to salicylate ingestion. Salicylates initially stimulate the CNS respiratory center, causing tachypnoea and leading to a fall in PaCO2 and a respiratory alkalosis.

An anion gap metabolic acidosis then follows, due primarily to the accumulation of organic acids, including lactic acid and ketoacids, as well as metabolites of aspirin which are weak acids. The timeframe for this change is not definitive, however, 12 hours would be considered an adequate time for this shift to occur.

Question:

A 57-year-old man presents with worsening breathlessness, haemoptysis and fatigue. He does not have any known past medical history. He is pyrexic on admission. On examination, there is bronchial breathing heard over the right upper lobe and the right lower lobe is dull to percussion. There is no evidence of finger clubbing, rash or peripheral oedema. Heart sounds are normal. Chest X-ray shows patchy areas of consolidation and right-sided pleural effusion. Sputum microscopy reveals acid-fast bacilli.

Which is the following should be part of your next steps in management?

A.CT pulmonary angiogram (CTPA)

B.Echocardiogram

C.HIV test

D.Lumbar puncture

E.Tuberculin skin test

Answer:HIV test

Explanation:

A HIV test should be offered to all patients with TB

Important for meLess important

This patient has pulmonary tuberculosis (TB). Next steps include at least 3 sputum cultures, screening for immunosuppression including an HIV test - and so this is the correct answer from the options above - and antibiotic therapy. HIV infection may alter the treatment of TB and treatment of HIV infection may lead to a more rapid resolution of TB.

A CTPA obtains an image of the pulmonary vessels and is used to investigate for pulmonary embolism. This is not indicated here - a CT chest would be more appropriate.

An echocardiogram is not indicated as there is no evidence of heart failure or infective endocarditis.

Patients undergo lumbar puncture if central nervous system TB is suspected. This patient has no altered mental status or neurological symptoms; rather, his signs and symptoms are consistent with pulmonary TB, hence a lumbar puncture is not indicated.

A negative tuberculin skin test (TST) does not rule out active TB as false-negative results occur in 20% to 25% of patients with active pulmonary TB. The sensitivity of a TST in diagnosing active TB is around 75% and its inability to distinguish between latent infection and active disease limits its usefulness. It is therefore not a first-line investigation in pulmonary TB.

Question:

A 34-year-old man with a background of polycythaemia rubra vera presented with a 2-day history of sudden onset worsening abdominal pain. On examination of his abdomen, there was tenderness on palpation to his right upper quadrant with moderate shifting dullness and the liver edge was present 2cm below the right costal margin.

Given the likely diagnosis, was is the most sensitive first line investigation?

A.Ultrasound with doppler flow

B.CT liver with triple phase

C.MRI liver with contrast

D.Contrast-enhanced CT abdomen

E.Hepatic vein venography

Answer:Ultrasound with doppler flow

Explanation:

Budd–Chiari syndrome - ultrasound with Doppler flow studies is very sensitive and should be the initial radiological investigation

Important for meLess important

This patient has most likely presented here with Budd-Chiari syndrome. In this situation, an ultrasound with doppler flow studies is highly sensitive and should, therefore, be the first radiological investigation. It will exhibit the absence of blood flow in the hepatic vein or flow reversal and even the thrombus itself.

The contrast-enhanced CT scan would be able to visualise the presence of patchy enhancement of the liver tissue and post-hepatic inferior vena cava (IVC) may be absent. The caudate liver lobe is often enlarged and pre-hepatic dilatation of the IVC is seen but the thrombus itself can be shown in less than 50% of patients. Splenomegaly with ascites would also be seen.

The role of MRI in diagnosing Budd–Chiari syndrome is still up and coming. It is able to detect blood flow or its absence within the hepatic vein or IVC.

Hepatic vein venography could help identify the thrombus and further demonstrate a web as a cause of the obstruction. It would also be able to distinctly visualise intrahepatic collaterals.

Question:

You are reviewing a 79-year-old man who has a history of hypothyroidism, Parkinson's disease and depression. These problems are well controlled using levothyroxine, co-careldopa and citalopram. He complains of symptoms consistent with gastro-oesophageal reflux disease. Which one of the following medications is it most important to avoid?

A.Metoclopramide

B.Rantidine

C.Cyclizine

D.Lansoprazole

E.Esomeprazole

Answer:Metoclopramide

Explanation:

Metoclopramide is contraindicated in Parkinsonism

Important for meLess important

As metoclopramide is a dopamine antagonist it may worsen symptoms in patients with Parkinson's disease.

Question:

A 73-year-old man with chronic heart failure is commenced on digoxin for atrial fibrillation. The patient is quite concerned about starting a new medication.

How often should this medications levels be checked to monitor it?

A.No regular monitoring needed

B.Digoxin concentrations should be measured within 2-6 hours following last dose

C.Weekly

D.Every month

E.Every 3 months

Answer:No regular monitoring needed

Explanation:

Digoxin level is not monitored routinely, except in suspected toxicity

Important for meLess important

As per NICE guidelines, regular monitoring of plasma-digoxin concentration during maintenance treatment is not needed unless toxicity is suspected.

Digoxin has a long half-life and maintenance doses need to be given only once daily. If toxicity is suspected, concentrations of digoxin should be measured within 8 to 12 hours of the last dose.

Toxicity may occur even when the concentration is within the therapeutic range. Plasma concentration alone cannot indicate digoxin toxicity in there is an increased change through the range of 1.5 to 3 micrograms/litre for digoxin. Caution must be given with prescribing to the elderly particularly those who are at increased risk of toxicity. The BNF advises that the likelihood of toxicity increases progressively from 1.5 to 3 mcg/l.

Digoxin levels are not monitored weekly. They are monitored in suspected toxicity.

Digoxin levels are not monitored monthly. They are monitored in suspected toxicity.

Digoxin levels are not monitored every 3 months. They are monitored in suspected toxicity.

Question:

A 30-year-old woman is 24 weeks pregnant and she receives a letter about her routine cervical smear. She asks her GP if she should make an appointment for her smear. All her smears in the past have been negative. What should the GP advise?

A.Reschedule the smear to occur at least 12 weeks post-delivery

B.Take the smear now

C.This smear can be missed, she will be re-entered for routine screening in 3 years

D.Perform a speculum exam to visualise the cervix for abnormalities

E.Seek advice of an obstetric consultant

Answer:Reschedule the smear to occur at least 12 weeks post-delivery

Explanation:

NICE guidelines suggest that a woman who has been called for routine screening wait until 12 weeks post-partum for her cervical smear. If a smear has been abnormal in the past and a woman becomes pregnant then specialist advice should be sought. If a previous smear has been abnormal, a cervical smear can be performed mid-trimester as long as there is not a contra-indication, such as a low lying placenta.

Cervical screening is important and women should be encouraged to engage in routine screening.

Question:

A woman presents to have a Nexplanon (etonogestrel) inserted. Where is the most appropriate place to insert the implant?

A.Below the subcutaneous fat, either thigh

B.Subdermal, non-dominant arm

C.Subdermal, left arm unless used for dialysis or previous 'non-trivial' infection

D.Below the subcutaneous fat, non-dominant arm

E.Subdermal, buttock

Answer:Subdermal, non-dominant arm

Explanation:

Implantable contraceptives (Nexplanon) - subdermal

Important for meLess important

Question:

A barium swallow is arranged for a 33-year-old man who complains of persistent heartburn.

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What is the most likely diagnosis?

A.Retrosternal goitre

B.Oesophageal cancer

C.Pharyngeal pouch

D.Achlasia

E.Hiatus hernia

Answer:Hiatus hernia

Explanation:

This film demonstrates a sliding hiatus hernia. The gastric fundus is displaced above the diaphragm.

Question:

A 30-year-old unkempt female of no fixed abode presents to the emergency department with severe right upper quadrant pain, decreased consciousness levels and vomiting. She is confused and combative, so a further history is difficult to obtain. On examination she appears thin, jaundiced and has large bruises on her arms and legs. Needle track marks are noted in her anterior cubital fossa. Abdominal exam reveals tenderness in the right upper quadrant but nil else of note.

Observations: respiratory rate = 22 breaths/min, oxygen saturations = 98% on air, heart rate = 112 bpm, blood pressure = 103/98 mmHg, temperature = 37.8ºC, Glasgow Coma Scale score = 12 (E3 V4 M5).

Hb 102 g/L ALT 375 U/L

MCV 101 fL AST 790 U/L

WBC 12.0 x 109 /L ALP 170 U/L

INR 2.5 GGT 425 U/L

Bilirubin 89 µmol/L Amylase 350 U/L

Which of the following is the most likely diagnosis in this patient?

A.Acute hepatitis B virus infection

B.Alcoholic hepatitis

C.Autoimmune hepatitis

D.Pancreatitis

E.Paracetamol overdose

Answer:Alcoholic hepatitis

Explanation:

The AST/ALT ratio in alcoholic hepatitis is 2:1

Important for meLess important

In anyone presenting with right upper quadrant pain, jaundice and signs of liver failure, hepatitis should be one of your top differentials. This has many causes and so one must look for clues to the cause in the history, examination and bloods.

In this case, the blood provide the biggest clue to the cause. The macrocytic anaemia, raised GGT and the ratio of AST/ALT being greater than 2:1 point towards this being a case of alcoholic hepatitis. The 2:1 ratio is characteristic of alcoholic hepatitis over other causes of hepatitis.

It is important to note that, while the white cell count is raised and there is a fever, this is seen with any inflammation in the body so does not in itself point towards an infection.

1. Incorrect. While the needle track marks do suggest a history of IVDU, a risk factor for hepatitis B virus infection, this would not explain the macrocytic anaemia or the fact that the GGT is raised more than the ALP.

2. Correct.

3. Incorrect. This can cause hepatitis but the onset is usually much more insidious. Other features such as arthralgia, vitiligo, epistaxis or amenorrhoea would point towards this being the diagnosis.

4. Incorrect. The amylase is raised and the patient does have abdominal pain, so one could be forgiven for thinking pancreatitis could be the cause. However, in pancreatitis, one would expect the pain to be epigastric with radiation to the back. The amylase would also be much more raised than it is in this case. A mildly raised amylase can be seen alcoholic hepatitis.

5. Incorrect. While this is a cause of hepatitis, this would not explain the macrocytic anaemia or the fact that the GGT is raised more than the ALP.

Question:

A 28-year-old woman attends the clinic with a 6-month history of diarrhoea and abdominal pain. She describes her stools as offensive smelling and difficult to flush. On examination, she has generalised abdominal tenderness.

Blood results are as follows:

Hb 120 g/L Male: (135-180)

Female: (115 - 160)

Platelets 192 \* 109/L (150 - 400)

WBC 6.2 \* 109/L (4.0 - 11.0)

Anti-tissue transglutaminase antibody 14 U/ml (>9 U/ml positive)

What blood film abnormality is commonly associated with her underlying condition?

A.Blasts

B.Heinz bodies

C.Howell-Jolly bodies

D.Schistocytes

E.Spherocytes

Answer:Howell-Jolly bodies

Explanation:

Target cells and Howell-Jolly bodies may be seen in coeliac disease → hyposplenism

Important for meLess important

The patient has a diagnosis of coeliac disease confirmed with the raised anti-tissue transglutaminase antibody. This condition is frequently associated with hyposplenism. Blood film abnormalities in a hyposplenic patient include Howell-Jolly bodies, target cells, and acanthocytes.

Blasts are often seen in the peripheral blood due to haematological malignancies such as acute myeloid leukaemia, and myelodysplastic syndrome. However, a 'leukoerythroblastic' reaction can also be seen in patients who are extremely unwell (e.g. due to sepsis).

Heinz bodies are associated with G6PD deficiency. They occur due to oxidative damage resulting in denatured haemoglobin. They are removed by the spleen resulting in the production of a 'bite cell'.

Schistocytes are red cell fragments which occur due to mechanical damage to red cells. They are associated with microangiopathic haemolytic anaemias such as thrombotic thrombocytopaenic purpura (TTP).

Spherocytes occur to hereditary spherocytosis and auto-immune haemolytic anaemia.

Question:

A 67-year-old man presents to the emergency department complaining of central crushing chest pain and nausea.

A 12-lead electrocardiogram (ECG) is performed and reveals an ST-elevated myocardial infarction (STEMI), and so treatment is commenced.

Blood tests are also performed and the results are shown below:

Hb 65 g/L (135-180)

Platelets 320 \* 109/L (150 - 400)

WBC 10 \* 109/L (4.0 - 11.0)

Below what haemoglobin threshold would a red-cell transfusion be required in this patient?

A.60 g/L

B.70 g/L

C.80 g/L

D.100 g/L

E.135 g/L

Answer:80 g/L

Explanation:

The transfusion threshold for patients with ACS is 80 g/L

Important for meLess important

The correct answer is 80g/L.

Patients presenting with acute coronary syndrome (ACS) and a need for transfusion have a higher transfusion threshold of 80g/L, compared to the general 70 g/L. Therefore, given the blood test results shown for this patient, he would require a red cell transfusion. The presence of anaemia in the context of a patient experiencing a myocardial infarction is a common scenario presenting to emergency care. Anaemia is associated with an increased risk of significant morbidity and mortality for patients with ACS, which drives the higher transfusion threshold for these patients. It is important to note than patients with a past history of cardiovascular disease who need a transfusion should also be transfused at the 80g/L threshold.

A threshold of 60g/L is considered too low, especially for ACS patients.

A threshold of 70 g/L is the general haemoglobin threshold for red cell transfusion. However, this patient is an exception. Further exceptions to this transfusion threshold include those with major haemorrhage and those who require regular transfusion for chronic anaemia.

Although this man would be considered anaemic at a haemoglobin level of 100 g/L, this anaemia would not be severe enough to require a red-cell transfusion.

A haemoglobin level of 135g/L is the lower limit of normal for this patient. This would not require transfusion.

Question:

A 15-year-old teenage girl presents with delayed puberty, having not commenced her menses. She is well in her self generally, with no significant medical history.

On examination, she is of slim build, with small breasts. There is no pubic hair present. Her abdomen is soft and non-tender, though there are marble-sized groin swellings bilaterally.

What is the most likely explanation for this presentation?

A.Non-Hodgkin's lymphoma

B.Imperforate hymen

C.Turner's syndrome

D.Androgen insensitivity

E.Congenital adrenal hyperplasia

Answer:Androgen insensitivity

Explanation:

Androgen insensitivity - classic presentation is 'primary amenorrhoea'

Important for meLess important

The key symptom here is the groin swellings, which combined with 'primary amenorrhoea' and no pubic hair points towards a diagnosis of androgen insensitivity (previously testicular feminisation syndrome). The groin swellings here are undescended testes. This is a condition in which the patient is genetically male (46XY), but phenotypically female. Feminisation is a result of increased oestradiol levels, which lead to breast development.

Non-Hodgkin's lymphoma could explain the groin swellings, but would likely have systemic symptoms and is a less likely cause of delayed puberty.

Congenital adrenal hyperplasia would likely be diagnosed much earlier than puberty and is typically characterised by ambiguous genitalia and other symptoms of adrenal insufficiency, such as arrhythmias and vomiting.

Turner's syndrome (45X0) would have other physical features mentioned, notably short stature, shield chest and webbing of the neck. These patients would be unlikely to have breast development.

Question:

A 29-year-old nulliparous woman is referred to the breast clinic by her GP with a right-sided lump. She has noticed the mass for the past 5 weeks and denies any pain, discharge, or overlying skin changes. She is embarrassed about the lump and asks for it to be ‘dealt with’ as she has started a new relationship and her partner has also noticed the mass.

On examination, there is a mobile, smooth, firm breast lump which measures 3.2 cm in size.

Ultrasound is performed and confirms a fibroadenoma.

What is the most appropriate management for this patient?

A.Anastrozole

B.Surgical excision

C.Tamoxifen

D.Ultrasound-guided monochloracetic acid injection

E.Watch and wait

Answer:Surgical excision

Explanation:

Breast fibroadenoma: surgical excision is usual if >3cm

Important for meLess important

Surgical excision is the appropriate management for fibroadenomas which are >3cm in size. This is generally offered as masses over this size may cause cosmetic body anxiety and may cause symptoms, such as breast discomfort, particularly with any further growth. As the patient has expressed body insecurity regarding the mass, she should be offered this treatment option.

Anastrozole is an aromatase inhibitor used in the management of hormone-receptor-positive breast cancer patients in post-menopausal women. As this vignette indicates the patient has a benign breast lesion, there is no evidence of hormone receptor status on the lesion and is pre-menopausal, this is an incorrect answer.

Tamoxifen is used in the management of breast cancer. It has been shown in some early clinical trials to reduce benign breast lump development in pre-menopausal women however it is not a mainstay of fibroadenoma treatment currently.

Ultrasound-guided monochloracetic acid injection is an incorrect answer. Monochloracetic acid is an alternative to cryotherapy in plantar wart management but is not an alternative to breast cryotherapy. Some centres may offer ultrasound-guided cryotherapy for the removal of fibroadenomas that are <4 cm in size, however surgical excision is the more common treatment offered.

Watch and wait is a potential offer of treatment however it does not manage the patient’s expectations as she is anxious about the mass and asks for it to be ‘dealt with’. Furthermore, there is a chance that with the mass having already increased in size to 3cm that it will continue to grow (with larger fibroadenomas, particularly those >5cm being particularly challenging to excise without leaving greater areas of residual scarring).

Question:

A 6-month-old boy is brought to the GP by his mother, who is concerned he is not gaining weight and is extremely pale.

On examination, the child is indeed very pale, and also appears jaundiced. His growth chart shows he has dropped from the 9th to the 0.4th centile.

The GP takes some blood tests, the results of which are shown below:

Hb 67 g/L Male: (135-180)

Female: (115 - 160)

MCV 65fl (76-96)

Platelets 160 \* 109/L (150 - 400)

WBC 5 \* 109/L (4.0 - 11.0)

Haemoglobin electrophoresis is performed, showing:

HbA2 5.5% (1.5-3.5%)

HbS 0% (0%)

What is the most likely diagnosis?

A.Alpha thalassaemia major

B.Alpha thalassaemia trait

C.Beta thalassaemia major

D.Beta thalassaemia trait

E.Sickle cell anaemia

Answer:Beta thalassaemia major

Explanation:

HbA2 is raised in patients with beta thalassaemia major

Important for meLess important

Beta thalassaemia major is correct. In beta thalassaemia major, both beta-globin chains are defective. As a result, HbA (2 alpha and 2 beta chains) cannot be produced. This results in severe anaemia, and a consequent rise in other forms of haemoglobin, for example, HbA2 (2 alpha and 2 delta chains) and HbF (2 alpha and 2 gamma chains).

Alpha thalassaemia major is incorrect. In alpha thalassaemia major, all 4 alpha-globin genes are deleted, so no HbA can be formed. This results in the formation of HbBarts (4 gamma chains). This condition is non-compatible with life, as babies often die in utero or shortly after birth.

Alpha thalassaemia trait is incorrect. This would involve the deletion of one or two alpha-globin genes. This is usually asymptomatic.

Beta thalassaemia trait is incorrect. Here, only one beta-globin gene is defective/absent. This picture is usually asymptomatic, and the anaemia is only mild.

Sickle cell anaemia is incorrect. In sickle cell anaemia, both beta-globin chains are mutated and no HbA can form. Instead, HbS (2 alpha and 2 mutated beta) forms. This would present similarly, however, the haemoglobin electrophoresis does not show any HbS.

Question:

A 59-year-old male attends a pre-operative clinic ahead of an elective laparoscopic cholecystectomy. He has no medical conditions but reports he had diarrhoea and vomiting 3 days ago.

An ECG is performed, which is shown below:

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What does the ECG show?

A.Hypercalcaemia

B.Hyperkalaemia

C.Hypokalaemia

D.Normal ECG

E.Wolff-Parkinson-White syndrome

Answer:Hypokalaemia

Explanation:

The ECG shows signs of hypokalaemia: U waves are visible in leads V2 and V3, and QT interval prolongation. Based on the history of diarrhoea and vomiting, the likely cause of hypokalaemia, in this case, is gastrointestinal loss of K+. He should have blood taken to confirm the diagnosis and assess the severity of hypokalaemia.

Hypercalcaemia typically causes shortening of the QT interval and if severe, may be associated with J waves. These findings are not present in this ECG.

Hyperkalaemia is associated with tall, tented T waves, flattened P waves, PR prolongation, and broad QRS complexes. These findings are not present in this ECG.

Normal ECG is incorrect due to the presence of U waves and QT prolongation. These findings are not a variation of normal and represent an underlying diagnosis of hypokalaemia, as explained above.

Wolff-Parkinson-White syndrome is caused by an accessory conducting pathway between the atria and ventricles. ECG changes include a short PR interval and wide QRS complexes with a 'slurred upstroke' known as a delta wave in the early part of the QRS complex. These findings are not present in this ECG.

Question:

A 33-year-old female presents with a vaginal discharge. Which one of the following features is not consistent with bacterial vaginosis?

A.Vaginal pH > 4.5

B.Thin, white homogenous discharge

C.Strawberry cervix

D.Clue cells on microscopy

E.Positive whiff test

Answer:Strawberry cervix

Explanation:

A strawberry cervix is associated with Trichomonas vaginalis, a condition which may present in a similar fashion to bacterial vaginosis

Question:

A 26-year-old male is struck on the side of the head above the ear by a fast moving golf ball. He lost consciousness for a few seconds, initially recovered, but then progressively lost consciousness again. He is taken immediately to the emergency department and a CT head revealed a right-sided extradural haematoma. He is noted to have a right-sided dilated and unreactive pupil.

What cranial nerve is being compressed in order to explain his pupillary abnormality?

A.2

B.3

C.4

D.5

E.6

Answer:3

Explanation:

Uncal herniation causes a dilated pupil due to compression of the third cranial nerve

Important for meLess important

Uncal herniation (or transtentorial herniation) occurs when the uncus of the temporal lobe herniates under the free edge of the tentorium cerebelli. The herniated uncus compresses the third cranial nerve causing a surgical third nerve palsy, presenting as a dilated and unreactive pupil.

Subfalcine herniation describes the cingulate gyrus herniating under the falx cerebri and in isolation does not cause a third nerve palsy. Transcalvarial herniation describes brain herniating through an open skull fracture. Tonsillar herniation describes the cerebellar tonsils herniating through the foramen magnum and in the context of raised intracranial pressure is termed 'coning'. Central herniation is the diencephalon herniating downwards towards the midbrain.

Question:

You have been asked to review a patient with chest pain awaiting assessment by the psychiatry team.

Examination and investigations are normal, however, you note that he is acting strangely. He is reluctant to answer questions and does not maintain eye contact. After developing trust with him, he discloses he has never been in a relationship and that he prefers to be on his own as he won't embarrass himself. He has no friends and doesn't speak to his family because they criticise everything he does.

Which form of personality disorder is he likely suffering from?

A.Antisocial

B.Avoidant

C.Borderline

D.Histrionic

E.Schizoid

Answer:Avoidant

Explanation:

Patients with avoidant personality disorder are fearful of criticism, being unliked, rejection and ridicule

Important for meLess important

An avoidant personality disorder is correct. It is associated with social isolation and avoidance of activities due to a fear of embarrassment, criticism, and fear of others.

An antisocial personality disorder is associated with impulsivity, aggressiveness, and irritability. People often fight and have a lack of remorse. They are irresponsible and find it difficult to maintain a job.

Borderline personality disorder reflects a mixture of feelings involving impulsivity in self-damaging acts, instability in relationships, depression, and worries about abandonment.

Histrionic personality disorder describes a person with inappropriate sexuality. People generally show suggestibility, self-dramatisation, and inappropriate sexual seduction.

Schizoid personality disorder refers to a preference of being alone with few interests, few friends, and a lack of desire for companionship.

Question:

You are working in the emergency department. On approaching the bedside of an elderly obese man, you find him quite drowsy. When you call out his name, you hear a grunting noise. You can see that the patient has periorbital ecchymosis and clear fluid leaking from one nostril. The patient's oxygen saturations are 82% on air.

Which airway adjunct should you not use in this patient?

A.Endotracheal tube

B.I-gel

C.Laryngeal mask airway

D.Nasopharyngeal airway

E.Oropharyngeal airway

Answer:Nasopharyngeal airway

Explanation:

Nasopharyngeal airways are contraindicated in suspected are known base of skull fractures

Important for meLess important

Periorbital ecchymosis (raccoon eyes) and CSF rhinorrhoea are two signs of a basal skull fracture. Other signs include haemotympanum and mastoid process bruising (battle's sign).

ET tube, i-gel and LMA - no contraindications, but would not be first-line and would require a trained professional to insert, usually an anaesthetist.

Nasopharyngeal airway - is (relatively) contraindicated in suspected or known base of skull fractures due to the rare risk of inserting the airway into the cranial cavity.

Oropharyngeal airway - would be the airway adjunct of choice in this patient.

Question:

A 34-year-old man presents to an emergency surgery with abdominal pain. This started earlier on in the day and is getting progressively worse. The pain is located on his left flank and radiates down into his groin. He has had no similar pain previously and is normally fit and well. Examination reveals a man who is flushed and sweaty but is otherwise unremarkable. What is the most suitable initial management?

A.Oral ciprofloxacin

B.IM diclofenac 75 mg

C.Oral co-amoxiclav and metronidazole

D.IM morphine 5 mg

E.IM diclofenac 75 mg + start bendroflumethiazide to prevent further episodes

Answer:IM diclofenac 75 mg

Explanation:

Guidelines continue to recommend the use of IM diclofenac in the acute management of renal colic

Important for meLess important

This man may need to be referred acutely to the surgeons for pain relief and investigations to exclude obstruction. It would not be suitable to start bendroflumethiazide in the initial phase of the first episode

Question:

A 40-year-old female attends the emergency department after being discharged from hospital following a laparoscopic cholecystectomy 3 weeks ago. She has ongoing right upper quadrant pain and her sclera appear jaundiced. She is very concerned that something went wrong in the surgery and that she will need revision surgery.

What is the most likely explanation for her presentation?

A.Failure of surgical anastomosis

B.Gallstones present in the common bile duct causing symptoms

C.Jaundice and pain secondary to a malignant process

D.Post-operative hepatic impairment

E.Remnant of gallbladder leading to gallstone formation and symptoms

Answer:Gallstones present in the common bile duct causing symptoms

Explanation:

Gallstones may be present in the CBD causing ongoing jaundice and pain after cholecystectomy

Important for meLess important

This patient has had a cholecystectomy and is presenting with symptoms of biliary obstruction (jaundice and right upper quadrant pain). This is most likely due to gallstones being left in the common bile duct (CBD) which can lead to obstructive jaundice symptoms post-cholecystectomy.

A failure of surgical anastomosis would cause an anastomotic leak in a shorter time frame than the 3-week interval in which this patient is presenting. Typically bile leaks will be identified within the first week post-operatively and will lead to abdominal pain, diaphragmatic irritation (causing shortness of breath and pain on deep inspiration), and peritonitic features on examination. This patient appears relatively comfortable in comparison to patient's who present with an anastomotic leak.

Jaundice and pain secondary to a malignant process are unlikely to have occurred in such a short time frame following a period that would have included imaging to exclude any malignancy. Prior to the cholecystectomy, the patient would have had CT scans which would have been likely to flag up a local malignancy which would then cause biliary obstruction. It is important to note that there may (or may not be) evidence of systemic symptoms in patients with malignancy - these include unplanned weight loss, night sweats, and bone pain.

Post-operative hepatic impairment would not typically be associated with jaundice and is not the most likely cause for a presentation post-operatively for a patient who has previously known gallstones. The patient would need work up with LFTs sending and consideration of imaging to assess for hepatitis if this was the most likely clinical diagnosis.

While incomplete gallbladder resection occurs in up to 13% of laparoscopic cholecystectomies (a slightly greater number than open cholecystectomies), it is less common than CBD gallstones and, is such, the incorrect answer. It is also important to note the timeframe in the vignette, this patient is presenting 3 weeks after the operation - most gallbladder stump gallstone presentations occur over 9 months following incomplete gallbladder removal (this timeframe is noted to range up to 25 years post-operatively in one study).

Question:

A 26-year-old woman is referred to the gynaecology clinic with severe dysmenorrhoea and a clinical history suggestive of endometriosis. She has tried paracetamol and ibuprofen with little benefit. She is not planning to start a family for the next couple of years. What is the recommended first-line management, providing that there are no contraindications?

A.Laparoscopic adhesiolysis

B.Copper intrauterine device

C.Progesterone injection Depo-Provera

D.Combined oral contraceptive pill (COCP)

E.Gonadotropin-releasing hormone (GnRH) analogues

Answer:Combined oral contraceptive pill (COCP)

Explanation:

Endometriosis is a common disorder, characterised by the deposits of endometrial-like tissue outside the uterus. It is an oestrogen dependent condition, that starts after menarche and regresses following the menopause.

Treatments depend upon whether the patient wishes to conceive or not. If the patient is not planning to conceive then treatments include methods that inhibit ovulation (as endometriosis is an oestrogen dependent condition).

The COCP is the first line option and can be used back-to-back with no pill-free interval. Second line treatments include progesterone only methods, such as POP, implant or injection (again they work by inhibiting ovulation). In addition, the Mirena coil can be used as it will reduce bleeding, resulting in less retrograde menstruation. The copper intrauterine device can make menstrual cycles longer and more painful and would not be a suitable option.

If the above methods fail to improve a patient's symptoms, then GnRH analogues may be used.

In patients with endometriosis who wish to conceive, then a referral to fertility services is recommended if the couple have not conceived after 6 months of regular unprotected vaginal sexual intercourse. Surgical options such as laparoscopic adhesiolysis may improve fertility rates in patients with mild-moderate disease.

GP notebook. Endometriosis treatments.

Question:

A 32-year-old mother of three-month-old infant presents to the outpatient clinic with a complaint of pain on her right wrist for one week. The pain is on the radial side of the wrist, and there is tenderness over the radial styloid process.

What is the most likely diagnosis?

A.Carpal tunnel syndrome

B.De Quervain's tenosynovitis

C.Osteoarthritis

D.Radial nerve entrapment

E.Scaphoid fracture

Answer:De Quervain's tenosynovitis

Explanation:

Pain on the radial side of the wrist/tenderness over the radial styloid process ? De Quervain's tenosynovitis

Important for meLess important

This patient has pain on the radial side of the wrist and tenderness over the radial styloid process. Her symptoms are explained by de Quervain's tenosynovitis. De Quervain's tenosynovitis is a common condition in which the sheath containing the extensor pollicis brevis and abductor pollicis longus tendons is inflamed. It typically affects females aged 30-50 years old. Finkelstein's test is positive (on grasping the patient's thumb and abducting the hand to the ulnar side, there is pain over the radial styloid process).

Carpal tunnel syndrome occurs following compression of the median nerve within the carpal tunnel. The symptoms include numbness, paresthesia, and pain in the median nerve distribution.

Osteoarthritis is a chronic inflammatory conditions of joints and is unlikely in this patient.

Radial nerve entrapment may occur at any point along the anatomic course of the nerve. The most frequent site of compression is in the proximal forearm. It results in numbness, paresthesia, pain, and weakness in the radial nerve distribution.

A scaphoid fracture is the fracture of the scaphoid bone mostly caused by trauma. Symptom includes pain at the base of the thumb, which is worse with use of the hand.

Question:

A 42-year-old man is reviewed by his dermatologist for ongoing psoriasis. He was diagnosed several years ago and has had recurrent bouts since then. Recently, he has just completed a 4-week course of topical betamethasone and calcipotriol to bring the latest flare-up under control.

Given the frequency of flare-ups, the dermatologist suggests starting a long-term regime to keep his psoriasis under control.

Which of the following would be suitable long-term?

A.Topical betamethasone

B.Topical betamethasone and calcipotriol

C.Topical calcipotriol

D.Topical hydrocortisone

E.Topical hydrocortisone and calcipotriol

Answer:Topical calcipotriol

Explanation:

Calcipotriol may be used on a long-term basis for psoriasis

Important for meLess important

From the above options, topical calcipotriol alone is the only drug that may be used safely for long-term management. Calcipotriol is a vitamin D analogue that reduces epidermal proliferation - a pathophysiological feature of psoriasis. It reduced scale and thickness of psoriatic plaques, but not the associated erythema.

Topical betamethasone is a potent corticosteroid. NICE recommend not using potent steroids for more than 8 weeks at a time as they can lead to skin atrophy, rebound symptoms and striae.

Topical betamethasone with calcipotriol is therefore inappropriate as a long-term plan, as it includes a potent steroid.

Topical hydrocortisone is a weaker steroid, but would still be inappropriate to use long-term, as the same effects seen with betamethasone will occur.

Topical hydrocortisone and calcipotriol is incorrect for the reasons described above.

Question:

You are called by the husband of a 45-year-old patient who is registered at your practice. Her only history of note is type 2 diabetes mellitus treated with metformin. For the past three days he states that she has been 'talking nonsense' and starting to hallucinate. An Approved Mental Health Professional is contacted and makes her way to the patient's house. On arrival you find a thin, unkempt lady who is sat on the pavement outside her house, threatening to 'kick your head in'. What is the most appropriate action?

A.Ask her husband to restrain her

B.Lorazepam IM 1mg

C.Haloperidol IM 5mg

D.Call the police

E.Check her blood sugar

Answer:Call the police

Explanation:

The patient is in a public place and threatening violent behaviour. The police should be contacted to transport her to a place of safety where she may be formally assessed.

Metformin would not cause hypoglycaemia.

Question:

A 18-year-old man is given a diagnosis of type 1 diabetes by his GP. The doctor informs him that further tests are required, as he is at higher risk of developing other related conditions.

Which other disease must be investigated in this patient?

A.Crohn's disease

B.Ascending cholangitis

C.Viral hepatitis

D.Type 2 diabetes mellitus

E.Coeliac disease

Answer:Coeliac disease

Explanation:

Patients with type 1 diabetes or autoimmune thyroid disease should be screened for coeliac disease on diagnosis

Important for meLess important

A number of conditions are associated with coeliac disease, including type 1 diabetes and autoimmune thyroid disease. It is recommended that screening is conducted upon diagnosis so that early treatment may be given.

Question:

A 5-year-old boy is brought to the GP as his mother is concerned about his posture. On examination the spine is kyphotic, and furthermore the GP notes blue-grey sclera on general examination. There has been no history of bone fractures. To investigate further, the GP sends a set of blood tests suspecting osteogenesis imperfecta.

What bone profile blood test results would be most characteristic of this condition?

A.High calcium, high parathyroid hormone (PTH) and low phosphate (PO4)

B.High calcium, low PTH and P04

C.Low calcium, PTH and PO4

D.Low calcium, high PTH and PO4

E.Normal calcium, PTH and PO4

Answer:Normal calcium, PTH and PO4

Explanation:

Adjusted calcium, PTH, ALP and PO4 results are usually NORMAL in osteogenesis imperfecta

Important for meLess important

Osteogenesis imperfecta is a rare genetic disorder characterised clinically most commonly by frequent or multiple bone fractures, but also the blue-grey sclera, micrognathia and kyphoscoliosis. Biochemical tests typically show normal calcium, phosphate, and parathyroid hormone.

Elevated parathyroid hormone accompanied by high calcium indicates primary hyperparathyroidism and can be caused by parathyroid adenoma, hyperplasia or, rarely, parathyroid cancer.

Elevated parathyroid hormone accompanied by low calcium indicates secondary hyperparathyroidism, commonly caused by kidney failure or vitamin D deficiency.

Hypercalcaemia in the absence of elevated parathyroid hormone is suggestive of primary malignancy, but may also be secondary to conditions such as sarcoidosis.

Hypocalcaemia with concomitant low parathyroid hormone suggests parathyroid dysfunction. This is most commonly seen following thyroid or parathyroid surgery, or more rarely as part of an autoimmune syndrome.

Question:

A 27-year-old woman with a history of depression presents to the Emergency Department. She reports taking 50 paracetamol tablets yesterday. Bloods are taken on admission. Which one of the following would most strongly indicate the need for a liver transplant?

A.Blood glucose 2.2 mmol/l

B.ALT 2364 iu/l

C.INR 4.1

D.Creatinine 230 µmol/l

E.Arterial pH 7.27

Answer:Arterial pH 7.27

Explanation:

Liver transplantation criteria in paracetamol overdose: pH < 7.3 more than 24 hours after ingestion

Important for meLess important

The arterial pH is the single most important factor according to the King's College Hospital criteria for liver transplantation.

Question:

You are called by the mother of a 18-month-old boy. He has been unwell with a suspected viral upper respiratory tract infection for the past few days. His mother reports that he has just had a seizure. Three months ago he had a confirmed febrile convulsion following a similar illness. You arrange to see the child that morning. Which one of the following factors should prompt referral to paediatrics?

A.The mother describing a tonic-clonic seizure

B.The child still being drowsy 2 hours after the seizure

C.The temperature of the child still being 38.1ºC

D.A family history of epilepsy

E.Examination findings consistent with otitis media

Answer:The child still being drowsy 2 hours after the seizure

Explanation:

A child still being drowsy after 1 hour is not consistent with a 'simple' febrile convulsion.

A tonic-clonic seizure is typical and not a worrying feature.

Having a confirmed focus of infection (otitis media) is reassuring, rather than a reason to admit the child.

Question:

A 37-year-old woman presents to her GP to request emergency contraception after having unprotected sexual intercourse approximately 96 hours ago. She is currently completing a course of antibiotics to treat her recently diagnosed pelvic inflammatory disease (PID).

What is the most appropriate choice of emergency contraceptive for this patient?

A.Copper intrauterine device

B.Levonorgestrel (Levonelle)

C.No appropriate emergency contraception due to delayed presentation

D.No appropriate emergency contraception due to diagnosis of PID

E.Ulipristal acetate (EllaOne)

Answer:Ulipristal acetate (EllaOne)

Explanation:

Ulipristal (EllaOne) - a type of emergency hormonal contraception, can be used up to 120 hours post UPSI

Important for meLess important

Ulipristal acetate is the correct option, and is effective up to 120 hours post-unprotected sexual intercourse (UPSI). Its primary mechanism of action is thought to be the inhibition of ovulation.

Levonorgestrel must be used within 72 hours post-UPSI to ensure effectiveness and is therefore not appropriate in this patient. Its mechanism of action is thought to be a combination of inhibition of ovulation and prevention of implantation.

IUD insertion is contraindicated in active pelvic inflammatory disease and active sexually transmitted infections, as insertion may spread infections to the upper genital tract. However, oral hormonal emergency contraception (levonorgestrel or ulipristal acetate) can be used in patients with PID.

Delayed presentation is not an issue in this case, as the patient has presented 96 hours post-UPSI. Ulipristal acetate is effective up to 120 hours post-UPSI, and the copper IUD is effective up to 5 days post-UPSI or 5 days after the estimated date of ovulation, whichever is later.

Question:

Which one of the following skin disorders is not commonly seen with systemic lupus erythematous?

A.Keratoderma blenorrhagica

B.Alopecia

C.Livedo reticularis

D.Photosensitivity

E.Butterfly rash

Answer:Keratoderma blenorrhagica

Explanation:

Keratoderma blenorrhagica describes waxy yellow papules on the palms and soles. It is seen in Reiter's syndrome

Question:

During an out of hours shift, you are called to see a 78-year-old man who has developed acute urinary retention on a background of 2 years of urinary hesitancy and poor stream. He has a history of ischaemic heart disease, hypertension and he tells you that his usual GP has recently started him on a new medication for neuropathic pain.

Which of the following drugs is most likely to have precipitated the urinary retention?

A.Diazepam

B.Venlafaxine

C.Amitriptyline

D.Fluoxetine

E.Zopiclone

Answer:Amitriptyline

Explanation:

Tricyclic antidepressants may cause urinary retention

Important for meLess important

Amitriptyline has anticholinergic effects being associated with tachycardia, dry mouth, mydriasis and urinary retention.

These features are not typical of selective serotonin reuptake inhibitors (SSRIs) such as fluoxetine, or serotonin and norepinephrine reuptake inhibitors (SNRIs) such as venlafaxine, with urinary retention and dry mouth rarely reported.

Diazepam, a benzodiazepine does not have anticholinergic effects.

Zopiclone is a benzodiazepine-like agent whose side effects include metallic taste and headache.

Question:

A 65-year-old presents to the emergency department with severe central chest pain. He has hypertension and takes amlodipine. He smokes 40 cigarettes daily.

His heart rate is 115 bpm, his blood pressure is 163/96 mmHg, his oxygen saturations are 97%, and his respiratory rate is 20 /min. He is sweaty and in pain, and a cardiovascular examination is normal. An ECG shows sinus tachycardia and tall R waves and ST depression in V1 and V2.

Blood tests are performed:

Hb 140 g/L (135 - 180)

Platelets 160 \* 109/L (150 - 400)

WBC 5.0 \* 109/L (4.0 - 11.0)

Troponin I 1.50 ng/mL (0.00 - 0.04)

What is the most likely cause for this man's presentation?

A.Anterior ST elevation myocardial infarction

B.Inferior myocardial infarction

C.Non-ST-elevation myocardial infarction (NSTEMI)

D.Posterior myocardial infarction

E.Right ventricular infarction

Answer:Posterior myocardial infarction

Explanation:

Posterior MIs cause reciprocal changes in V1-3

horizontal ST depression

tall, broad R waves

upright T waves

dominant R wave in V2

Important for meLess important

Posterior myocardial infarction is correct. This patient has signs and symptoms consistent with myocardial infarction, due to his heavy chest pain, pallor, and sweating. It is important to note that not every patient will present with classic pain that radiates to the left shoulder or jaw. This patient's troponin is elevated, which supports a diagnosis of myocardial infarction. The patient's ECG findings are consistent with a posterior myocardial infarction, due to the presence of tall R waves and ST depression in leads V1 and V2. Because the infarct is posterior, the lead findings are reversed, therefore pathological (deep) Q waves become tall R waves instead. A helpful way of remembering this is that the change is an 'upside down' ST elevation seen in leads opposite to the side of the infarction.

Anterior ST elevation myocardial infarction is incorrect. ST elevation would be seen in V1-V4 and there would be no tall R waves.

Non-ST-elevation myocardial infarction (NSTEMI) is incorrect. A posterior myocardial infarction with tall R waves can be thought of as an 'upside down' ST elevation seen in leads opposite to the side of the infarction. A posterior lead ECG should be considered which would show ST elevation in V7-V9. Therefore, a posterior myocardial infarction in this scenario is a type of ST-elevation myocardial infarction (STEMI). This is important because the management of a STEMI varies from that of an NSTEMI.

Inferior myocardial infarction is incorrect. This would present with ST-elevation in leads II, III, and aVF.

Right ventricular infarction is incorrect. This in isolation is a very rare diagnosis. It is usually a complication of an inferior STEMI (RCA occlusion resulting in ECG ST-elevation in leads II, III and aVF). The only lead on an ECG that looks directly at the right ventricle is V1. Therefore, right ventricular infarction on an ECG would have ST elevation in V1. This is usually accompanied by ST depression in V2. Typically, lead III is more positive than lead II as the axis of lead III points to the right ventricle more. The ECG findings for this patient do not satisfy this so this answer is incorrect.

Question:

A woman brings her six-week-old son to see his general practitioner. The boy has been vomiting white 'stuff' after feeds, and also often cries whilst being breastfed. He has no diarrhoea or bloody stools. He was born at 35 weeks by ventouse delivery.

What is the most likely diagnosis?

A.Coeliac disease

B.Cow's milk protein intolerance/allergy

C.Duodenal atresia

D.Gastro-oesophageal reflux

E.Gastroenteritis

Answer:Gastro-oesophageal reflux

Explanation:

Infant < 8 weeks, presents with milky vomits after feeds, often after being laid flat, excessive crying → ? GORD

Important for meLess important

Gastro-oesophageal reflux is the most likely diagnosis. This is indicated by the combination of milky vomits after feeds and crying with feeds, in an infant under eight weeks. Risk factors include preterm delivery, which is seen in this case.

Coeliac disease is incorrect as this usually presents when children are introduced to cereals. However, this child is being exclusively breastfed. It would also be more likely to present with diarrhoea and failure to thrive.

Cow's milk protein intolerance/allergy is incorrect. This can lead to regurgitation, vomiting and irritability but this is not the most likely diagnosis because it is typically seen in formula-fed infants. Although it can rarely be seen in exclusively breastfed infants, you would expect it to be accompanied by other features such as diarrhoea and atopy. Gastro-oesophageal reflux is therefore the more likely diagnosis.

Duodenal atresia is incorrect as it causes bilious vomiting in neonates, a few hours after birth. This child is six-weeks-old and has white vomitus, and therefore unlikely to have duodenal atresia.

Gastroenteritis is unlikely as the mother has not reported any diarrhoea. Additionally, the timing of the vomits straight after feeds points to gastro-oesophageal reflux.

Question:

A well 35-year-old female attends the GP practice with her partner as she is struggling to become pregnant. They have been trying for a year with regular sexual intercourse. What is the most appropriate first line investigation?

A.Abdominal ultrasound scan

B.Day 21 progesterone

C.Transvaginal ultrasound scan

D.Thyroid function tests

E.Serum prolactin

Answer:Day 21 progesterone

Explanation:

According to NICE guidance 'a woman of reproductive age who has not conceived after 1 year of unprotected vaginal sexual intercourse, in the absence of any known cause of infertility, should be offered further clinical assessment and investigation along with her partner.'

The most appropriate first line investigation in this patient is a day 21 progesterone. This is a non-invasive test and can tell you whether the patient is actually ovulating.

Both serum prolactin and thyroid function tests are not recommended unless patient's have a specific reason for being tested i.e. a pituitary tumour or signs of overt thyroid disease.

Neither a transvaginal USS or an abdominal USS are likely to reveal the cause of subfertility and are therefore not warranted in this patient.

The male partner should also have a semen analysis as part of the initial assessment.

Question:

A 14-year-old boy attends your clinic complaining of persistent nighttime cough, wheeze, and shortness of breath for a few months. He has a history of eczema and hay fever. On examination, the patient has normal observations and looks well at rest. There is a mild expiratory wheeze and his peak expiratory flow rate is 80% of his predicted. A recent spirometry test was negative.

What is the most appropriate next step in the diagnosis of this patient?

A.Chest x-ray

B.Fractional exhaled nitric oxide (FeNO) test

C.Refer for respiratory review

D.Repeat spirometry

E.Serial peak flow testing

Answer:Fractional exhaled nitric oxide (FeNO) test

Explanation:

A negative result on spirometry does not exclude asthma as a diagnosis, and should be further investigated

Important for meLess important

This patient likely has asthma and is having a mild exacerbation. NICE advise that a negative spirometry test does not rule out asthma. A fractional exhaled nitric oxide (FeNO) test should be done to confirm the diagnosis, and a result of >35ppb would be diagnostic for this patient. It is unlikely that a second spirometry test will provide more clarity. The patient requires a salbutamol reliever inhaler and will likely require a preventer inhaler.

There is currently no indication for a respiratory referral because there are no obvious complications to the diagnosis or treatment of his asthma in the scenario.

The patient is atopic and there are no concerning risk factors in the history or examination to warrant a chest x-ray at this stage.

Serial peak flow testing can be useful if there is still diagnostic uncertainty following spirometry and FeNO testing but this would not be the next step in the assessment of this patient.

Question:

A 48-year-old farmer presents to the Emergency Department with a one day history of faecal and urinary incontinence. He is normally fit and well, and only takes sertraline for depression. He is orientated, but appears anxious and diaphoretic.

On examination, his chest is clear, and heart sounds are normal, whilst his pupils are 1mm in diameter, and reactive to light bilaterally. His abdomen is soft and non-tender, and peripheral neurological examination is normal, with the exception of occasional lower limb fasciculations.

His observations are as follows: respiratory rate 16/min; oxygen saturations 97% on air; temperature 36.2ºC; heart rate 50 beats per minute; blood pressure 99/60 mmHg.

What is the most likely diagnosis?

A.Opioid toxicity

B.Paraquat poisoning

C.Organophosphate poisoning

D.Gamma-hydroxybutyrate (GHB) toxicity

E.Serotonin syndrome

Answer:Organophosphate poisoning

Explanation:

Organophosphate insecticide poisoning - bradycardia

Important for meLess important

This patient has a number of the classic features of organophosphate poisoning. Organophosphates inhibit acetylcholinesterase enzymes, leading to upregulation of cholinergic transmission. As acetylcholine is the principal neurotransmitter for postganglionic neurons in the parasympathetic nervous system, a number of features of organophosphate poisoning represent over-activation of the parasympathetic nervous system (e.g. the excessive urination, defaecation, borderline bradycardia and miosis seen in this patient). In addition to this, the post-ganglionic fibres of sweat glands use cholinergic transmission, explaining the presence of diaphoresis in this patient.

Opioid toxicity would explain this patient's miosis, but would be associated with respiratory depression, constipation rather than faecal incontinence, and would not usually lead to urinary incontinence.

Poisoning with the herbicide paraquat is a plausible differential, due to the patient's occupation as a farmer. This may also present with cardiovascular depression and sweating, but would not explain the classic symptoms of excessive muscarinic cholinergic transmission (urination, defaecation and miosis).

GHB toxicity is associated with bradycardia and hypotension but tends to cause respiratory depression and reduced alertness rather than cholinergic symptoms.

This patient's diaphoresis and faecal incontinence are in keeping with serotonin syndrome, which in this patient could conceivably be secondary to sertraline overdose. However, serotonin syndrome is more likely to be associated with flushing and tachycardia, rather than features of excessive parasympathetic stimulation such as miosis.

Question:

A 72-year-old male presents to the emergency department with a 4-hour history of tearing chest pain that radiates to his back. He has a past medical history of dyslipidemia and has a 40-pack-year smoking history. A CT angiogram is ordered, which identifies a false lumen of the descending aorta.

Which of the following is the most appropriate initial step in the management of this patient?

A.Immediate transfer to theatre for open vascular repair

B.Intravenous labetalol

C.Intravenous labetalol and transfer for thoracic endovascular aortic repair

D.Intravenous verapamil and transfer for thoracic endovascular aortic repair

E.Urgent fluid challenge

Answer:Intravenous labetalol

Explanation:

An uncomplicated dissection of descending aorta may be managed medically

Important for meLess important

This patients presentation of tearing chest pain, hypertension and CT angiography finding of a false lumen of the descending aorta all suggests a diagnosis of dissection of the descending aorta. Aortic dissections may be classified as type A (which affects the ascending aorta) and type B (affects descending aorta only). Management of type A consists of hypertension control with intravenous (IV) labetalol and surgical repair, which is usually thoracic endovascular aortic repair. Type B dissections require management of hypertension with IV labetalol only.

Immediate transfer to theatre for open vascular repair is incorrect, management of an uncomplicated type B dissection does not require surgical repair. Management should instead focus on the reduction of hypertension, meaning administration of IV labetalol is paramount.

Intravenous labetalol and transfer for thoracic endovascular aortic repair is incorrect as uncomplicated type B dissections do not require surgical management.

Intravenous verapamil and consideration for thoracic endovascular aortic repair is incorrect. IV verapamil aimed at controlling hypertension should only be considered in cases of a phaeochromocytoma crisis. As discussed above, surgery is not indicated in this patient.

Urgent fluid challenge is incorrect. Given the likely diagnosis of an aortic dissection, administration of a fluid bolus will likely increase the patient's blood pressure which may extend the dissection and have fatal consequences.

Question:

A 12-year-old boy presents with hip pain. He reports that it has been ongoing for the last 1 week and he has been unable to participate in sports. He recently has been absent from school due to feeling unwell with fever and fatigue but this has resolved.

On examination, there is pain on palpation of the right hip with a restricted range of movement.

Below is an image of his pelvic X-ray:

© Image used on license from Radiopaedia

Given the most likely diagnosis, how would you manage this patient?

A.Antibiotics

B.External fixation

C.Internal fixation

D.Pavlik harness

E.Replacement arthroplasty

Answer:Internal fixation

Explanation:

The above X-ray shows a widening of the physis of the right proximal femur and displacement of the epiphysis in the right hip joint which is consistent with a slipped capital femoral epiphysis.

Internal fixation is correct. The patient is presenting with slipped capital femoral epiphysis. It can occur with acute pain of the affected joint or with a more chronic onset. When patients are examined, there is a reduced range of movement and a loss of internal rotation on flexion. It should be managed with internal fixation.

Antibiotics is incorrect. Antibiotics are indicated if there are signs of septic arthritis or osteomyelitis. It may be prescribed for bursitis if this may be due to infection. These differentials should be considered with joint pain, especially if the patient is feverish, has signs of cellulitis, or if the joint is hot to the touch. However, the X-ray would not show the abnormality seen in this scenario and may show bone erosion in cases of osteomyelitis.

External fixation is incorrect. External fixation is where a device is used to keep the fracture aligned from the outside through the skin into the bone. It is usually used when the fracture would not be suitable for a cast. It can be used in paediatric patients, however, internal fixation is usually used in slipped capital femoral epiphysis.

Pavlik harness is incorrect. This is used in the management of developmental dysplasia of the hip. This condition should be picked up during neonatal checks or early on in childhood, and it is caused by the femur not aligning correctly with the acetabulum. This can affect the baby's development, and they may not reach their milestones. The Pavlik harness holds the joint in an abducted and externally rotated position to correct the abnormality, therefore it is used in babies and would not be suitable to be used in a 12-year-old patient who is mobile.

Replacement arthroplasty is incorrect. This is the management for Perthe's disease. This is a rare condition that affects the hip joint. The blood supply is lost leading to necrosis of the joint. The patient may present with a limp, short stature in pre-pubescence, and limited range of movement. Replacement arthroplasty can be used in the long-term management of patients with slipped capital femoral epiphysis due to the complications such as deformity and severe osteoarthritis. However, it is not the first-line treatment. The priority is the stabilisation of the joint by internal fixation.

Question:

A 33-year-old male presents to general practice with a 1-week history of pain and swelling in his left knee and right ankle. On examination, his knee and ankle are erythematous, swollen and tender. His observations are normal. He has a past medical history of ulcerative colitis, gastro-oesophageal reflux disease (GORD) and depression.

A rheumatological screen is performed which shows the following:

CRP 86 mg/L (< 5)

ESR 37 mm/hr Men: < (age / 2)

RF (rheumatoid factor) 5 IU/ml (<20)

Anti-CCP 1 U/ml (<7)

ANA negative

ANCA negative

The GP refers the patient to rheumatology, where further tests are performed.

Which of the following tests are most likely to be positive?

A.Anti-Jo 1

B.HLA-B51

C.Anti-cardiolipin

D.Anti-dsDNA

E.HLA-B27

Answer:HLA-B27

Explanation:

Enteropathic arthritis is a seronegative spondyloarthropathy associated with HLA-B27

Important for meLess important

This patient has presented with signs of asymmetrical inflammation of peripheral joints, with a background of inflammatory bowel disease. This points towards a diagnosis of enteropathic arthritis. Enteropathic arthritis is seronegative (RF-negative), therefore this patient's blood results are consistent with this - they are significant only for raised inflammatory markers.

Seronegative spondyloarthropathies are associated with HLA-B27, therefore this is the correct answer.

Anti-Jo 1 antibodies are associated with polymyositis.

HLA-B51 is associated with Behçet's disease.

Anti-cardiolipin antibodies are associated with antiphospholipid syndrome.

Anti-dsDNA is associated with systemic lupus erythematosus (SLE).

Question:

A 75-year-old woman presents with fatigue, dyspnoea and ankle swelling on a background of hypertension, osteoarthritis, gout and type 2 diabetes mellitus. On examination, her cheeks appear erythematous. She has an irregularly irregular pulse and a raised JVP. There is peripheral oedema up to the knees bilaterally. On auscultation, the 1st heart sound is loud, and there is an added low, rumbling diastolic murmur.

Which is the following is the most likely cause of this woman's presentation?

A.Bicuspid aortic valve

B.Degenerative calcification

C.Mitral valve prolapse

D.Rheumatic fever

E.Systemic lupus erythematosus

Answer:Rheumatic fever

Explanation:

Rheumatic fever is the most common cause of mitral stenosis

Important for meLess important

This woman presents with mitral stenosis. The features in the examination which point to this diagnosis are mitral facies, atrial fibrillation due to left atrial dilatation, raised JVP, peripheral oedema and a characteristic diastolic murmur with an opening snap. The most common cause of mitral stenosis (up to 95%) is rheumatic heart disease. Other causes are far less common, including congenital disease, degenerative calcification, Libman-Sacks endocarditis, rheumatoid arthritis and amyloidosis.

Bicuspid aortic valve is a cause of aortic stenosis - this typically presents with syncope, angina and dyspnoea. On auscultation, an ejection systolic murmur with radiation to the carotids is classic. It is also a cause of aortic regurgitation which could present similarly with heart failure and a diastolic murmur. However, it does not typically cause atrial fibrillation and signs on examination include collapsing pulse, wide pulse pressure and eponymous signs.

Degenerative calcification can cause mitral stenosis - however, rheumatic fever is by far the most common and therefore most likely cause. It is also a cause of aortic stenosis which is detailed in the paragraph above.

Mitral valve prolapse is heard as a blowing systolic murmur loudest at the axilla. It can present with atypical chest pain, syncope or palpitations. Patients may also be asymptomatic.

Libman–Sacks endocarditis is a form of non-bacterial endocarditis that is seen in association with systemic lupus erythematosus (SLE). This can rarely cause mitral stenosis or aortic regurgitation and would not be the most likely cause in this scenario given the negative past medical history and the absence of other signs.

Question:

A 12-year-old girl has recently been diagnosed as having coeliac disease. Along with a gluten free diet, she has been asked to receive some extra vaccinations, including the pneumococcal vaccine. Her mother has come to see her GP, asking why she needs to receive this vaccine.

Which of the following is the reason she needs the pneumococcal vaccine?

A.Anaemia

B.Hyposplenism

C.Lymphoma

D.Lactose intolerance

E.Osteoporosis

Answer:Hyposplenism

Explanation:

People with coeliac disease receive the pneumococcal vaccine due to hyposplenism

Important for meLess important

People with coeliac disease often have function hyposplenism, making it important that they receive the pneumococcal vaccine and yearly influenza vaccines, as hyposplenism can cause mild immunosuppression. The other options are all complications or associated conditions with coeliac disease, but are not the reason for the vaccines.

Question:

A 45-year-old female was admitted for appendectomy. Her medical history includes antithrombin III deficiency and cervical cancer. On the second day post-surgery, she complained of chest tightness and shortness of breath. Clinical suspicion of pulmonary embolism is raised.

Which ECG finding would most likely be seen?

A.Sinus tachycardia

B.Supraventricular tachycardia

C.Ventricular tachycardia

D.S1Q3T3

E.ST elevation

Answer:Sinus tachycardia

Explanation:

The most common ECG change in PE is sinus tachycardia

Important for meLess important

The commonest ECG finding in pulmonary embolism is sinus tachycardia (63% of presentations). Other possible ECG findings include right bundle branch block, and T-wave inversion/ ST depression in V1 and V2.

While S1Q3T3 is classic of PE, it is a rare pattern (10%). There are deep S waves in I, pathological Q waves in III, and inverted T waves in III indicating acute right heart strain. This is a common exam trap. If the question was worded differently and asked for ECG pattern that would most likely suggest PE, the answer would then be S1Q3T3.

Supraventricular tachycardia exists in many form, including atrial flutter, atrial fibrillation and Wolff-Parkinson-White syndrome.

Ventricular tachycardia has a number of causes, such as coronary heart disease, cardiomyopathy, and long QT syndrome.

ST elevation is seen in ST-elevation myocardial infarction and pericarditis.

Question:

A 62-year-old presents to his GP with hypertension that has been difficult to manage. He is currently on ramipril and amlodipine, but blood pressure readings taken at home over the last month have persistently been above 150/90 mmHg.

Given this, the GP decides to trial the addition of indapamide. Several weeks after starting, routine blood tests are taken and an abnormality is noted.

Which of the following is the most likely abnormality?

A.Hypercalcaemia

B.Hyperkalaemia

C.Hypernatraemia

D.Hypoglycaemia

E.Thrombocytosis

Answer:Hypercalcaemia

Explanation:

Thiazide diuretics can cause hypercalcaemia and hypocalciuria

Important for meLess important

Of the abnormalities listed, hypercalcaemia is correct. Thiazide diuretics work by blocking the Na-Cl symporter in the distal convoluted tubule. This indirectly also leads to hypercalcaemia. Remember, as more calcium is being reabsorbed, less is being excreted in the urine - i.e. hypocalciuria. As such, these drugs are useful for the prevention of calcium-based kidney stones.

Hyperkalaemia is incorrect - the opposite, hypokalaemia, occurs. This is due to more sodium reaching the collecting ducts, causing further potassium loss.

Hyponatraemia, rather than hyper-, occurs with thiazide use. This is due to the primary effect of the drug - blockage of the Na-Cl symporter.

These drugs are also known to cause impaired glucose tolerance, and hyperglycaemia - not hypoglycaemia.

Very rarely, thiazides have been implicated in thrombocytopaenia. Thrombocytosis is therefore incorrect.

Question:

A 27-year-old woman telephones her GP, asking for advice. She is very keen on stopping all of her medications and wishes to stop them all abruptly. She has a past medical history of asthma, depression and intermittent tennis elbow pain, for which she takes a salbutamol inhaler, citalopram and paracetamol respectively.

Which of the following is most likely to occur with regards to abrupt cessation of her medications?

A.Blunted affect

B.Cyanopsia

C.Diarrhoea

D.Hypertension

E.Weight gain

Answer:Diarrhoea

Explanation:

Gastrointestinal side-effects such as diarrhoea are seen in SSRI discontinuation syndrome

Important for meLess important

The salient point here is to note the use of citalopram. Stopping a salbutamol inhaler and paracetamol suddenly are not likely to lead to any side effects. Stopping a selective serotonin reuptake inhibitor (SSRI), such as citalopram, abruptly will lead to discontinuation symptoms. From those listed, by far, the most likely is diarrhoea, as gastrointestinal side-effects are generally common with SSRI discontinuation syndrome. To avoid this, SSRIs should gradually be tapered.

A blunted affect is unlikely to occur as a result of sudden discontinuation. This is often a side effect of antidepressants themselves. Discontinuation sometimes leads to the opposite - emotional lability and visible mood swings.

Cyanopsia, or blue-tinted vision, is not known to occur with SSRI discontinuation. It is a recognised side effect of some drugs, including sildenafil.

Hypertension has been reported in a few cases upon discontinuation of SSRIs, but diarrhoea and gastrointestinal symptoms are far more likely. It is more common with sudden discontinuation of beta-blockers.

Weight loss, rather than weight gain, is often reported upon sudden discontinuation of SSRIs.

Question:

A 67-year-old woman presents to her general practitioner complaining of morning stiffness in her shoulders that started two weeks ago. It gets better during the day but does not disappear completely. On examination, she has reduced range of motion in the shoulder girdle but her strength is normal. Her only past medical history is hypertension, for which she takes amlodipine. The doctor orders some blood tests that show the following:

Hb 126 g/L (115 - 160)

Platelets 287 \* 109/L (150 - 400)

WBC 8.2 \* 109/L (4.0 - 11.0)

ESR 54 mm/hr (0-30)

Creatine kinase 126 U/L (35 - 250)

Which one of the following medications is the most appropriate to prescribe?

A.Dexamethasone

B.Methotrexate

C.Paracetamol and topical NSAIDs

D.Prednisolone

E.Pregabalin

Answer:Prednisolone

Explanation:

Oral prednisolone is the treatment of choice for polymyalgia rheumatica

Important for meLess important

The correct answer is prednisolone. This patient presents with the classical signs and symptoms of polymyalgia rheumatica, such as aching and morning stiffness in proximal limb muscles but in absence of weakness. Additionally, her blood tests show an increased ESR with normal creatine kinase, and this is typical of polymyalgia rheumatica. This condition is an inflammatory condition, so prednisolone helps in reducing the inflammatory processes involved, improving the symptoms.

Dexamethasone is another type of steroid medication. It has very high glucocorticoid activity but minimal mineralocorticoid activity. It has many uses, including in the diagnosis of Cushing's syndrome.

Methotrexate is the first-line treatment for rheumatoid arthritis. It is a folate derivative that inhibits several enzymes responsible for nucleotide synthesis, leading to suppression of inflammation as well as prevention of cell division. This would present with swollen and painful joints in the hands and feet, that are stiff in the morning whilst this patient complains of morning stiffness in the shoulders.

Paracetamol and topical NSAIDs are the first-line treatment for osteoarthritis. This would present as unilateral pain, usually in a large joint (such as the knee) that gets better with usage. In this case, the stiffness is bilateral and gets better with usage.

Pregabalin is a gabapentinoid acting by inhibiting calcium channels. It is used in the management of fibromyalgia. This disease would present with widespread pain throughout the body with tender points at specific anatomical sites.

Question:

A 45-year-old woman presents with a six month history of persistent heavy, prolonged menstrual bleeding despite treatment with mefenamic and tranexamic acid. A transvaginal ultrasound shows an endometrial thickness of 15mm.

What would be the next appropriate line of investigation?

A.Endometrial ablation

B.Endometrial biopsy at hysteroscopy

C.Hysteroscopy

D.CA125 blood level

E.LLETZ procedure

Answer:Endometrial biopsy at hysteroscopy

Explanation:

Endometrial biopsy criteria according to NICE guidelines:

If appropriate, a biopsy should be taken to exclude endometrial cancer or atypical hyperplasia. Indications for a biopsy include : persistent intermenstrual bleeding and in women aged 45 and over treatment failure or ineffective treatment.

In the case of the patient above, her treatment has failed and she has a thickened endometrium.There is controversy over the thickness of the endometrium in premenopausal woman, as it is dependent on what stage of the menstrual cycle the patient is in when she has her scan performed. However based on the failed medical treatment alone, this patient qualifies for a biopsy and of all the answers this would be the most suitable option.

Further information about endometrial thickness :http://radiopaedia.org/articles/endometrial-thickness

Question:

A 64-year-old man is admitted to the emergency department as his wife is concerned that he is becoming confused following a recent bad chest infection. She reports that he has not improved after a course of amoxicillin.

On examination, his respiratory rate is 30/min, blood pressure 88/60 mmHg, heart rate 120/min. Crackles are noted on the right side of his chest.

What is the most appropriate fluid therapy to give?

A.20 ml/kg stat

B.30 ml/kg stat

C.500ml stat

D.20 ml/kg over 1 hour

E.10 ml/kg over 1 hour

Answer:500ml stat

Explanation:

This patient has a number of features of red flag sepsis, including the confusion, low blood pressure and raised respiratory rate. The sepsis 6 should be started.

In the NICE guidelines on sepsis the following recommendations are made with regards to fluid resuscitation:

If patients over 16 years need intravenous fluid resuscitation, use crystalloids that contain sodium in the range 130–154 mmol/litre with a bolus of 500 ml over less than 15 minutes.

Question:

At what age would the average child acquire the ability to sit without support?

A.12 months

B.4-5 months

C.10-11 months

D.6-8 months

E.3 months

Answer:6-8 months

Explanation:

The answer (6-8 months) includes the 6 months as stated in the MRCPCH Development Guide. Most other sources suggest a slightly later age of 7-8 months.

Question:

A male attends the emergency department with acute onset swollen and painful left testicle. On examination, there is an absent cremasteric reflex.

Which of the following features would best support the most likely diagnosis?

A.Perianal bruising

B.Retracted testicle

C.The pain was of gradual onset

D.Aged 32

E.Temperature of 37.9°C

Answer:Retracted testicle

Explanation:

In acute testicular pain, a unilateral swollen and retracted testicle, with loss of the cremasteric reflex, is characteristic of testicular torsion

Important for meLess important

Sudden onset testicular pain and swelling is most likely to be caused by testicular torsion. The absent cremasteric reflex further suggest that torsion is the most likely diagnosis. Other causes of testicular pain and swelling, such as epididymitis and epididymo-orchitis present with slower onset pain and swelling.

Perianal bruising is not seen in testicular torsion. This would be a sign of perianal haematoma.

Testicular torsion tends to present with sudden onset rather than gradual onset pain.

Testicular torsion is normally very painful. However, a pain score below 8/10 would not necessarily rule out torsion either.

A temperature would be more suggestive of an infective process such as epididymo-orchitis.

Testicular torsion typically occurs in adolescents. A 32-year-old male may develop this condition but other causes of testicular swelling should also be considered.

Question:

A 45-year-old patient presents to her general practitioner complaining of a 2-week history of feeling extremely irritable and anxious, associated with 5kg weight loss. On further questioning, she reveals that she recently suffered from a throat infection, but is otherwise usually healthy, with no long-term medical conditions.

Examination reveals a tender smooth goitre and tachycardia.

Based on the above information, what is the most likely diagnosis for this patient?

A.De Quervain's thyroiditis

B.Graves' disease

C.Hashimoto's thyroiditis

D.Sick euthyroid syndrome

E.Toxic multinodular goitre

Answer:De Quervain's thyroiditis

Explanation:

De Quervain's thyroiditis: initial hyperthyroidism, painful goitre and globally reduced uptake of iodine-131

Important for meLess important

Based on the symptoms of weight loss, irritability and tachycardia, along with a goitre, it is likely that this patient is suffering from some form of hyperthyroidism. Unlike the other causes of hyperthyroidism, De Quervain's thyroiditis classically occurs following a viral infection, and causes a tender goitre, making this the most likely diagnosis. A radioisotope scan showing globally reduced levels of iodine-131 uptake would further help to confirm the diagnosis. Management involves symptom control with non-steroidal anti-inflammatories (NSAIDs) and /or beta-blockers. This condition is likely to cause an initial phase of hyperthyroidism, followed by a phase of hypothyroidism before returning to euthyroid levels.

Graves' disease is the most common cause of hyperthyroidism. However, it would not explain the tender goitre. It is also not associated with a recent viral infection, which strongly suggests a diagnosis of De Quervain's thyroiditis.

Hashimoto's thyroiditis is classically known as an autoimmune cause of hypothyroidism. However, it can have an initial hyperthyroid phase (known as hashitoxicosis). This can last for 1-2 months and is caused by the release of thyroid hormones from the gland. This phase is not a common feature of Hashimoto's thyroiditis and is not associated with a tender goitre or history of a viral illness. Therefore, it is less likely to explain the symptoms experienced by this patient.

Sick euthyroid syndrome classically causes symptoms of hypothyroidism, not hyperthyroidism. It can be triggered by illness. However, it tends to occur within the same time-frame as the illness and resolves as the illness resolves.

Toxic multinodular goitre is a cause of hyperthyroidism, tending to affect people who suffer from iodine deficiency. It would be associated with a non-tender goitre, which is not smooth but made up of lots of small nodules.

Question:

The anaesthetic team is preparing a patient for elective knee replacement surgery. Her height is 1.60 metres and her weight is 80 kilograms. She is a non-smoker, non-drinker, and has no known medical conditions. She takes no regular medications.

What is the patient's ASA score?

A.I

B.II

C.III

D.IV

E.V

Answer:II

Explanation:

Patients with BMI between 30 and 40 are classified as ASA II

Important for meLess important

An ASA (American Society of anaesthesiologists physical status) score is used in the pre-operative period to identify the risk of a patient undergoing anaesthesia. This patient has a BMI of 31.2 (calculated by weight in kg divided by height in m²). Therefore she is automatically classified as ASA II, despite otherwise being in good health.

Patients with an ASA of I have no known medical conditions, do not smoke or drink frequently and have a BMI <30. As this patient has a BMI >30 they score above an ASA of 1.

An ASA of III if applied to those with functional limitations due to moderate or severe disease such as heart failure, or a BMI of >40. As this patient has no known disease and a BMI of 31.2, they do not score as high as an ASA of III.

Patients who have a severe systemic disease that is a threat to their life are classed as ASA IV. BMI is not a criterion for this ASA score, and this patient does not have any severe systemic disease.

Those requiring an operation and anaesthesia to survive are classed as ASA V. An example of this is someone undergoing emergency surgery for a ruptured abdominal aortic aneurysm. This patient's operation is elective so they do not score an ASA of V.

Question:

A fifty-year-old man collapses, whilst visiting his wife on the ward. He is found to be pulseless and unresponsive so advanced life support (ALS) is commenced. The defibrillator displays ventricular fibrillation (VF). After three cycles of CPR and three shocks, he remains in VF. It is decided that adrenaline should be administered.

What is the correct dose to give?

A.0.1mg adrenaline

B.0.5mg adrenaline

C.1mg adrenaline

D.5mg adrenaline

E.10mg adrenaline

Answer:1mg adrenaline

Explanation:

The recommended dose of adrenaline to give during advanced ALS is 1mg

Important for meLess important

0.1mg adrenaline would be too little as the recommended dose to give in cardiac arrest is 1mg.

0.5mg adrenaline would be the correct dose for anaphylaxis however this man is in cardiac arrest so would require 1mg.

1mg adrenaline is the correct dose and this should be given as 10mls of 1:10,000 solution. The BNF states it must also then be flushed with at least 20mls of sodium chloride 0.9% to aid entry into the circulation.

5mg or 10mg of adrenaline would be much to higher dose to give at one time even in cardiac arrest.

Question:

A 71-year-old man presents to the emergency department with an abnormal cardiac rhythm. After various unsuccessful attempts of restoring normal cardiac rhythm, the team decides to administer him a drug. After the administration, he complains of severe chest pain, which is self-limiting and terminates quickly.

What drug has this patient been given?

A.Adenosine

B.Amiodarone

C.Atropine

D.Flecainide

E.Glyceryl trinitrate

Answer:Adenosine

Explanation:

Adenosine may cause chest pain

Important for meLess important

The correct answer is adenosine. This drug is used to terminate supraventricular tachycardias after vagal manoeuvers have failed. It can cause a brief sensation of flushing and intense chest pain, but the side-effects should resolve fastly. This medication should not be administered to asthmatics as it can cause bronchospasm.

Amiodarone is used in the pharmacological cardioversion of atrial fibrillation. It can cause thyroid dysfunction, corneal deposits, pulmonary and liver fibrosis, 'slate-grey' appearance, and bradycardia but it has not been shown to cause chest pain.

Atropine is used in the management of severe bradycardia. It can cause visual sensitivity to light, blurred vision, dry eyes, dry mouth, constipation, and decreased sweating but it has not been shown to cause chest pain.

Flecainide is used in the pharmacological cardioversion of atrial fibrillation. It can cause bradycardia but it has not been shown to cause chest pain.

Glyceryl trinitrate can be used in the management of acute coronary syndromes if the patient is not hypotensive. They can cause hypotension, tachycardia, headaches, and flushing but they have not been shown to cause chest pain.

Question:

A 28-year-old male returns from holiday in central America with symptoms of fever and headache. He is otherwise well with no past medical history or regular medications. Investigation confirms the presence of Plasmodium vivax. He completes a course of acute treatment and recovers well before return to the outpatient department for further management a few weeks later. He has had no adverse effects on the treatment and you confirm he has no allergies.

Which treatment should be now be commenced?

A.Artemisinin-based combination therapy (ACT)

B.Artesunate

C.Atovaquone and proguanil

D.Chloroquine

E.Primaquine

Answer:Primaquine

Explanation:

Primaquine is used in non-falciparum malaria to destroy liver hypnozoites and prevent relapse

Important for meLess important

Primaquine is correct as it is the only medication that prevents relapse. Non-falciparum malaria Plasmodium vivax and Plasmodium ovale can produce liver hypnozoites as part of their infection cycle. These hypnozoites can evade initial treatment by remaining dormant in the liver, before continuing the infection cycle after treatment has been stopped resulting in a relapse infection. Primaquine destroys these liver hypnozoites and therefore is used post-acute/initial therapy.

Artemisinin-based combination therapies are mainly used in the management of uncomplicated falciparum malaria. They can be used for the acute management of Plasmodium vivax however they must be followed by a course of primaquine to remove liver hypnozoites.

Atovaquone and proguanil are commonly known by the brand name Malarone is mainly used for prophylaxis of malaria when travelling to endemic areas and cannot be used alone in the management of Plasmodium vivax.

Artesunate is mainly used in the management of severe falciparum malaria. Artesunate can be used for the acute management of Plasmodium vivax however it does not remove liver hypnozoites and therefore primaquine must follow its use.

Chloroquine is used in first-line treatment for Plasmodium vivax and Plasmodium ovale, so long as there is no risk of resistance, but must they again must be followed by primaquine. As with all the other medications discussed chloroquine those not remove liver hypnozoites.

Question:

An 83-year-old man is admitted to the hospital for severe pneumonia. His oxygen saturation is 96% on 15 L/min. IV fluids and antibiotics have been started. You review his admission bloods which show the following:

Test Result Normal range

Hb 139 g/L Male: (135-180)

Platelets 450 \* 109/L (150 - 400)

WBC 19.0 \* 109/L (4.0 - 11.0)

CRP 176 mg/L (< 5)

Thyroid-stimulating hormone (TSH) 2.3 mU/L (0.5-5.5)

Free thyroxine (T4) 5.4 pmol/L (9.0 - 18)

What is the most appropriate management in view of his thyroid function tests?

A.No action necessary

B.Request an US scan of the thyroid gland

C.Start long-term thyroxine replacement therapy

D.Test for presence of anti-TPO antibodies

E.Trial thyroxine replacement for 6 months, then stop if symptoms resolve

Answer:No action necessary

Explanation:

Sick euthyroid is common in unwell, elderly patients and often needs no treatment

Important for meLess important

This is a classic picture of sick euthyroidism. Note that TSH may be low or inappropriately normal. These changes will typically revert following recovery from the illness and no therapeutic interventions are necessary . TFTs may be repeated after discharge from the hospital to confirm the return to normal values.

The rest of the options are incorrect, as this diagnosis can be made on clinical grounds with no need for additional imaging or testing.

Request an US scan of the thyroid gland is incorrect. This is usually done in the context of thyroid masses. It offers no valuable information in the context of a diagnosis of sick euthyroid.

Start long-term thyroxine replacement therapy is incorrect, as this patient does not have hypothyroidism. Sick euthyroidism is the most likely diagnosis, which will spontaneously resolve once the patient recovers from their illness.

Test for presence of anti-TPO antibodies is incorrect. Anti-TPO antibodies are found in 90% of cases of Hashimoto's thyroiditis, the most common cause of hypothyroidism.

Trial thyroxine replacement for 6 months, then stop if symptoms resolve is incorrect. This option would be considered in some cases of subclinical hypothyroidism, which is not the most likely diagnosis here.

Question:

A 66-year-old man with chronic kidney disease (CKD) presents to his general practitioner for routine blood tests. The results are below:

Hb 140 g/L Male: (135-180)

Female: (115 - 160)

Platelets 135 \* 109/L (150 - 400)

WBC 6.4 \* 109/L (4.0 - 11.0)

Na+ 130 mmol/L (135 - 145)

K+ 6.0 mmol/L (3.5 - 5.0)

Bicarbonate 16 mmol/L (22 - 29)

Urea 11.4 mmol/L (2.0 - 7.0)

Creatinine 186 µmol/L (55 - 120)

Calcium 1.2 mmol/L (2.1-2.6)

Phosphate 4.5 mmol/L (0.8-1.4)

Magnesium 0.8 mmol/L (0.7-1.0)

What result suggests a chronic, rather than acute, disease course in this patient?

A.Calcium

B.Haemoglobin

C.Phosphate

D.Potassium

E.Urea

Answer:Calcium

Explanation:

Hypocalcaemia is an indication that kidney disease is chronic and not acute

Important for meLess important

Calcium is correct. A value of 1.2mmol/L shows that the patient has hypocalcaemia. The kidneys activate vitamin D, therefore, chronic kidney disease results in a vitamin D deficiency and subsequent hypocalcaemia as vitamin D is required for calcium absorption in the GI tract. Hypocalcaemia is not seen in AKI because the body can store vitamin D for several months and compensate for an acute decrease in renal function. Therefore, hypocalcaemia is a sign of CKD and not AKI.

Haemoglobin is incorrect. Normocytic anaemia is a common finding in CKD. This patient's Hb is normal and therefore cannot be used to differentiate between CKD and AKI.

Phosphate is incorrect. Hyperphosphataemia may be seen in CKD, as hypocalcaemia results in secondary hyperparathyroidism. However, high phosphate can also be seen in AKI due to impaired phosphate excretion, so this cannot be used as an indication of chronic kidney disease.

Potassium is incorrect. Hyperkalaemia may be seen in CKD due to impaired potassium excretion and build-up over time. Still, it can also be seen in AKI due to direct injury of distal convoluted tubule cells and so cannot be used to differentiate CKD and AKI.

Urea is incorrect. Hyperuricaemia may be seen in CKD due to impaired excretion. However, it is also seen in AKI due to decreased excretion causing uraemia. It therefore cannot be used to differentiate between CKD and AKI.

Question:

A 78-year-old woman presents to her GP with stomach cramps and mid-back pain. Her GP notes she has recently been seen in the practice 2 months earlier with complaints of tiredness and a normocytic, normochromic anaemia was found. She was referred on a 2-week wait to gastroenterology and an OGD and colonoscopy found no evidence of gastrointestinal malignancy.

The GP takes some additional blood tests:

Calcium 2.9 mmol/L (2.1-2.6)

Phosphate 0.9 mmol/L (0.8-1.4)

Magnesium 0.9 mmol/L (0.7-1.0)

She is referred to haematology. They organise imaging and perform bone marrow aspiration.

What is the aspiration likely to show?

A.Dry tap

B.Hyperplastic lymphoblasts

C.Hyperplastic megakaryocytes

D.Plasma cells

E.Reticular fibrosis

Answer:Plasma cells

Explanation:

Multiple myeloma: bone marrow aspirate would show plasma cells

Important for meLess important

This presentation is suggestive of multiple myeloma due to a new anaemia that can not be explained by occult bleeding, mid-back pain suggestive of possible lytic bony lesions, and a new hypercalcaemia. Multiple myeloma is characterised by the malignant growth of plasma cells.

Plasma cells is seen in multiple myeloma. The signs pointing to multiple myeloma are anaemia, high calcium, renal disturbance and bony lesions. This patient has a recent history of anaemia with no GI cause and has high calcium and is in the correct age group. Therefore, this is the most likely answer.

Dry tap - this is seen in myelofibrosis due to fibrotic changes to the bone marrow. This means no cells are aspirated and the definitive diagnosis is reached via biopsy. It can cause anaemia as seen in this case. However, the stomach cramps are likely due to high calcium in this case, which is atypical in myelofibrosis. Myelofibrosis instead presents with constitutional symptoms due to a hypermetabolic state, bleeding and splenomegaly.

Hyperplastic lymphoblasts is indicative of an acute leukaemia. Whilst acute lymphoblastic leukaemia is usually found in children, acute myeloid leukaemia is seen in elderly patients. It would also present with anaemia as seen in this case. However, it is unusual to present with high calcium and would more typically present with bleeding due to thrombocytopenia and infections due to a reduction in mature white blood cells.

Hyperplastic megakaryocytes - seen in multiple conditions such as polycythaemia vera. This can present with symptoms such as a headache, visual disturbance and erythromelalgia. High calcium is atypical and does not match this case.

Reticular fibrosis is a finding from a biopsy, not aspiration. It is a diagnostic test for myelofibrosis, the presentation of which is mentioned above under 'dry tap'.

Question:

A 21-year-old man presents with a short history of severe headache, fever and neck stiffness.

An initial CT brain is normal and you proceed to perform a lumbar puncture.

His lumbar puncture results are as follows.

Appearance Cloudy

Opening pressure 31cmCSF (5 - 20)

WBC count 357 cells/µL (99% polymorphs) (<1)

Glucose 0.4mmol/L (2.5 - 3.5)

Protein 1.3g/L (0.18 - 0.45)

The patient is started on IV antibiotics and steroids and after a few days begins to recover.

He asks you about his prognosis and asks if he is likely to be left with any long-lasting effects of this illness.

What is the most common complication of his condition?

A.Adrenal insufficiency

B.Cognitive impairment

C.Conductive hearing loss

D.Epilepsy

E.Sensorineural hearing loss

Answer:Sensorineural hearing loss

Explanation:

Sensorineural hearing loss is the most common complication following meningitis

Important for meLess important

This patient has bacterial meningitis. His history is suggestive of meningitis and this is confirmed on the lumbar puncture. He has a high white cell count, high protein and low glucose which are the typical findings of bacterial meningitis. There is also the high opening pressure and the cloudy CSF which suggest infection.

All of the above options can be complications of meningitis but sensorineural hearing loss is the most common, occurring in 34% of cases.

Adrenal insufficiency is incorrect. It is a rare but recognised complication of meningococcal meningitis and is caused by adrenal haemorrhage. This is known as Waterhouse-Friderichsen syndrome.

Conductive hearing loss is not correct. Meningitis does not cause conductive hearing loss but does cause sensorineural hearing loss as described above.

Epilepsy is incorrect. Ongoing seizures are present following 13% of cases of bacterial meningitis.

Cognitive impairment is also incorrect as it occurs in about 9% of cases.

It is worth noting complications are more likely with pneumococcal meningitis than in meningococcal meningitis but 57% of those with meningococcal septicaemia will have some form of complication.

Question:

A 55-year-old woman presents to the Emergency Department after coughing up blood this morning. She is a non-smoker and reports that she has been feeling fatigued for the last three months and has lost 4 kg in weight. She has also experienced joint pains in her wrists and noticed blood in her urine on two separate occasions. Her past medical history includes sinusitis and recurrent epistaxis. Her chest X-ray and urinalysis reports are shown below:

Chest X-Ray bilateral perihilar cavitating nodules seen

Urinalysis protein +, blood ++

Given this patient’s presentation, which is the most appropriate investigation to confirm the diagnosis?

A.Antinuclear antibody (ANA)

B.Cytoplasmic antineutrophil cytoplasmic antibodies (cANCA)

C.Perinuclear antineutrophil cytoplasmic antibodies (pANCA)

D.Sputum acid-fast stain

E.Sputum cytology

Answer:Cytoplasmic antineutrophil cytoplasmic antibodies (cANCA)

Explanation:

Renal impairment, respiratory symptoms, joint pain, systemic features → consider ANCA associated vasculitis

Important for meLess important

This patient’s history is suggestive of granulomatosis with polyangiitis (Wegener’s granulomatosis), an ANCA associated vasculitis, which often manifests with renal impairment, respiratory, systemic and ENT symptoms. A chest X-ray can be associated with nodular, fibrotic or infiltrative opacities. The best diagnostic test for granulomatosis with polyangiitis is cANCA.

ANA is usually associated with autoimmune conditions such as SLE, systemic sclerosis, Sjogren’s syndrome and autoimmune hepatitis.

pANCA would be more specific for eosinophilic granulomatosis with polyangiitis (Churg-Strauss) which presents with asthma and eosinophilia. It is characteristically associated with conditions including ulcerative colitis, primary sclerosing cholangitis and anti-GBM disease.

Sputum acid-fast stain would be the appropriate diagnostic test for tuberculosis. Although this patient has presented with haemoptysis, weight loss and cavitary lesions on chest X-ray, the haematuria, arthralgia, sinusitis and epistaxis findings are more consistent with granulomatosis with polyangiitis.

Sputum cytology may show lung cancer cells in a patient with lung malignancy however this is unlikely in this patient as she is a non-smoker and has not presented with a chronic persistent cough which is more indicative of lung cancer.

Question:

This 61-year-old woman presents to the local urgent care service complaining of a headache that has been so severe that it has made her vomit several times over the last 24 hours. The pain was somewhat worse overnight. She normally wears glasses.

What is the most appropriate management option?

A.Administer high flow oxygen

B.Administer mydriatic eye drops

C.Prescribe high dose corticosteroids and refer to ophthalmology

D.Same-day referral to neurology

E.Same-day referral to ophthalmology

Answer:Same-day referral to ophthalmology

Explanation:

The correct answer is that this patient needs a same-day referral to ophthalmology. She has acute angle closure glaucoma, where aqueous humor can no longer exit through the pupil and the resultant increase in intraocular pressure causes damage to the optic nerve. Her right pupil is partially dilated compared to the left pupil, and there is some scleral erythema. Her history is also consistent with acute glaucoma, as she has acute onset severe headache, nausea, and vomiting, with risk factors of age and possible far-sightedness if her glasses prescription is positive. Other symptoms of acute glaucoma include decreased vision, seeing halos around lights, and severe pain that localises to the affected eye. This patient is complaining of symptoms that are worse overnight, which is likely due to relative pupil dilatation in lower light settings and thus worsening the condition.

Administering high-flow oxygen is incorrect because this is not an appropriate treatment for suspected acute angle glaucoma and may delay definitive management. High-flow oxygen is important if carbon monoxide exposure or cluster headache is the suspected cause.

Further examination of the eyes using mydriatic eye drops is contraindicated in suspected acute angle closure glaucoma, as pupillary dilatation can worsen the condition by sharpening the closed angle. This is therefore incorrect.

Prescribe high dose corticosteroids and refer to ophthalmology is incorrect. High-dose corticosteroids are used if giant cell arteritis is the suspected cause of headache, but this patient’s symptoms are more suggestive of acute angle glaucoma. Corticosteroids are not an appropriate empiric treatment for acute glaucoma. The ophthalmology referral needs to be on the same day, preferably within an hour of diagnosis to prevent irreversible damage to the optic nerve.

Same-day referral to neurology is incorrect. While intracranial pathologies such as haemorrhage or space-occupying lesion is important to consider, it is not the most likely cause for the presentation, and sending the patient for this kind of workup is likely to delay any ophthalmology review further and therefore increase the risk of damage to the optic nerve.

Question:

A 39-year-old female presents with well-demarcated red, scaly patches affecting the back of her elbows. These are making it hard to care for her newborn.

She has been taking paracetamol regularly since her cesarean section 1 month ago and is not breastfeeding.

At a medical review two weeks ago, she had been started on propranolol as required for anxiety, promethazine as required for insomnia, and a course of prednisolone for Bell's palsy.

Which of the following is most likely to have precipitated her symptoms?

A.Promethazine

B.Paracetamol

C.Prednisolone

D.Pregnancy-related progesterone rise

E.Propranolol

Answer:Propranolol

Explanation:

Beta-blockers are known to exacerbate plaque psoriasis

Important for meLess important

This patient is presenting with typical features of plaque psoriasis, i.e. well-demarcated, scaly, erythematous patches affecting the extensor surfaces - in this case, the back of her elbows.

Propranolol is a beta-blocker and these are known to exacerbate plaque psoriasis. The inflammatory effects occur primarily with fat-soluble beta-blockers, such as propranolol, as opposed to water-soluble ones, such as atenolol.

Psoriasis often improves during pregnancy. This is thought to be due to the rise in progesterone dampening the overactive immune response that triggers psoriasis. Indeed, psoriasis may flare up after delivery due to a fall in progesterone. Therefore, stating that a progesterone rise has caused the flare would be incorrect.

Prednisolone is often used as part of the treatment for psoriasis and would be very unlikely to exacerbate it.

Paracetamol, unlike aspirin and non-steroidal anti-inflammatory drugs, is not known to exacerbate psoriasis.

Promethazine is an antihistamine used for allergies, nausea and insomnia. It is not known to exacerbate psoriasis.

Question:

Which one of the following contraceptives do the Faculty of Sexual and Reproductive Healthcare (FSRH) recommend should be discontinued after the age of 50 years?

A.Condoms

B.Progestogen only pill

C.Intrauterine system (e.g. Mirena)

D.Injectable contraceptives (e.g. Depo-Provera)

E.Implantable contraceptive (e.g. Nexplanon)

Answer:Injectable contraceptives (e.g. Depo-Provera)

Explanation:

Question:

A 65-year-old woman presents to her GP with 3-weeks of shoulder pain. She first noted right-sided pain and stiffness while playing tennis. However, the pain quickly became bilateral and has not improved. The stiffness is worse on waking and makes getting out of bed hard. There is no pain elsewhere. Systems review reveals fatigue and 2kg weight loss.

On examination, all movements of the shoulders are painful but strength is retained. There is bilateral upper arm tenderness.

Past medical history reveals hypercholesterolaemia and the patient started simvastatin 8-weeks ago.

What is the likely diagnosis?

A.Bilateral adhesive capsulitis

B.Lambert-Eaton syndrome

C.Polymyalgia rheumatica

D.Polymyositis

E.Statin-induced myopathy

Answer:Polymyalgia rheumatica

Explanation:

Polymyalgia rheumatic is characterised by abrupt onset of bilateral early morning stiffness in the over 60s

Important for meLess important

Polymyalgia rheumatica is correct. This is an inflammatory rheumatological condition that presents with the abrupt onset of bilateral early morning stiffness (typically in the shoulders and/or hips) in the over 60s. Sufferers will describe difficulty in rising from seated or prone positions. Constitutional symptoms such as weight loss and fatigue are common, as is muscle tenderness. On examination, movement is limited by stiffness and pain but strength is preserved.

Adhesive capsulitis is incorrect as it results in shoulder stiffness that is more insidious in onset than that of polymyalgia rheumatica and that tends to be preceded by a period of predominant pain. The disease is typically unilateral, rather than the bilateral symptoms seen in the brief. Adhesive capsulitis would not cause constitutional symptoms.

Lambert-Eaton syndrome is incorrect. This is a rare autoimmune condition which is often associated with malignancy (usually small-cell lung cancer). Whilst this condition affects the proximal muscles, it causes weakness, not stiffness. It is also more likely to affect the lower limbs initially. Malignancy should always be considered in patients with weight loss. However, this patient has no features to suggest underlying lung cancer, and her weight loss fits with a history of polymyalgia rheumatica.

Polymyositis is incorrect. This is an idiopathic inflammatory myopathy. Whilst polymyositis and polymyalgia rheumatica both affect a similar distribution of muscles, polymyositis is characterised by progressive weakness, not stiffness. There may be muscle tenderness in polymyositis, but this is not a prominent feature. Low-grade fever, weight loss and fatigue may be present in both conditions. Polymyositis is far less common than polymyalgia rheumatica, requires a higher dose of initial steroid treatment and may be associated with underlying malignancy.

Statin-induced myopathy is incorrect. This is a spectrum including myalgia, myositis, rhabdomyolysis and asymptomatic increases in creatinine kinase. Symptoms of statin-induced myopathy include muscle pain, muscle weakness and fatigue. As this patient has recently started a statin, statin-induced myopathy should be included in the differential causes of her pain, with normal creatinine kinase being required to rule this out. However, this is not a typical history of statin-induced myositis as there is no proximal muscle weakness, nor is myalgia the main symptom. Statin-induced myopathy is not associated with stiffness or constitutional symptoms.

Question:

A 35-year-old man presents to the emergency department with a 3-month history of fevers and profuse bloody diarrhoea. He has also had associated crampy abdominal pain. On examination, there is right upper quadrant tenderness, his temperature is 38.1ºC, heart rate is 95 beats per minute, blood pressure is 125/83 mmHg, respiratory rate is 12 breaths per minute and his oxygen saturations are 95% on room air.

He has no past medical history, nor has he been in contact with anyone else who is currently ill. The symptoms started a month after returning from Mexico.

What is the most likely causative agent?

A.Entamoeba histolytica

B.Escherichia coli O157:H7

C.Giardia lamblia

D.Plasmodium falciparum

E.Shigella species

Answer:Entamoeba histolytica

Explanation:

Entamoeba histolytica may cause dysentery, liver abscesses, colonic abscesses, or inflammatory masses in the colon

Important for meLess important

Entamoeba histolytica is correct. This patient has presented with features of dysentery (bloody diarrhoea, fever, and abdominal cramps) following travelling. There has been a long incubation period, along with profuse bloody diarrhoea, fevers, and right upper quadrant pain (suggesting liver involvement and the potential formation of a liver abscess), making the diagnosis likely to be amoebiasis. Amoebiasis is also endemic in South America. The causative organism in amoebiasis of Entamoeba histolytica.

Escherichia coli O157:H7 is incorrect. This organism is responsible for haemolytic uraemic syndrome (HUS) as it releases the Shiga toxin, which typically presents in young children with a triad of acute kidney injury, haemolytic anaemia, and thrombocytopenia, which do not apply to this patient. Although HUS can cause bloody diarrhoea, fevers, and stomach cramps, its incubation period is much shorter at around 3-4 days and it would not explain this patient's right upper quadrant pain. This patient's incubation period has been 1 month.

Giardia lamblia is incorrect. Although Giardia lamblia (responsible for giardiasis) is more common in tropical and temperate regions of the world and may have a prolonged incubation period (the onset of symptoms is usually within a few weeks of exposure, and the symptoms can persist for several weeks to months), it is not associated with bloody diarrhoea and right upper quadrant pain.

Plasmodium falciparum is incorrect. This organism is responsible for falciparum malaria. Similarly to amoebiasis, the liver can be infected with the organisms lying dormant for months, giving rise to a long incubation period, the symptoms of malaria are fevers, headache and fatigue. Malaria is not associated with bloody diarrhoea. As well as this, patients are often severely unwell and deteriorate quickly, making it unlikely for them to have signs and symptoms for months as in this case.

Shigella species is incorrect. This is another organism responsible for haemolytic uraemic syndrome (HUS) due to releasing the Shiga toxin, which typically presents in young children with a triad of acute kidney injury, haemolytic anaemia, and thrombocytopenia. Although HUS can cause bloody diarrhoea, fevers, and stomach cramps, its incubation period is much shorter at around 1-3 days and it would not explain this patient's right upper quadrant pain.

Question:

A 42-year-old woman presents to her GP with a 3-month history of fatigue and fluid retention. She has a 4-year history of systemic lupus erythematosus but has not been taking any regular medication for the past 14 months, and has a positive family history of type 1 diabetes. On examination, her eyes appear puffy and swollen.

Her blood results include the following:

Hb 120 g/L Male: (135-180)

Female: (115 - 160)

Platelets 324 \* 109/L (150 - 400)

WBC 6.7 \* 109/L (4.0 - 11.0)

Thyroid stimulating hormone (TSH) 5.4 mU/L (0.5-5.5)

Free thyroxine (T4) 15.2 pmol/L (9.0 - 18)

Total thyroxine (T4) 63 nmol/l (70-140)

Serum TPO antibodies 0.3 IU/mL (<0.9)

What is the most likely cause of her symptoms?

A.Membranous glomerulonephritis

B.Hashimoto's thyroiditis

C.Graves' disease

D.Riedel's thyroiditis

E.IgA nephropathy

Answer:Membranous glomerulonephritis

Explanation:

Low total thyroxine levels may be seen in nephrotic syndrome

Important for meLess important

Membranous glomerulonephritis is a cause of nephrotic syndrome which may be associated with autoimmune diseases such as systemic lupus erythematosus (SLE).

As well as the classical findings of oedema (especially facial), proteinuria, and hypoalbuminaemia, the nephrotic syndrome can cause deranged TFTs due to urinary loss of thyroid-binding globulins, leading to a low total T4 level.

Hashimoto's thyroiditis causes hypothyroidism, with a low T4 and high TSH.

Graves' disease causes hyperthyroidism, with a high T4 and low TSH.

Although both Hashimoto's and Graves' disease are mediated by autoimmunity, and are therefore associated with personal and family history of other autoimmune diseases such as SLE and type 1 diabetes, we would expect some derangement of TSH levels in both of these cases. Additionally, increased levels of thyroid peroxidase (TPO) antibodies may be seen in both Graves' and Hashimoto's. TPO levels were normal in this scenario.

Riedel's thyroiditis is a rare form of thyroid disease, which would typically present with a hard, 'woody-feeling' goitre.

IgA nephropathy more typically causes nephritic syndrome rather than nephrotic syndrome, with visible haematuria, proteinuria and hypertension being more characteristic features. It may develop after an upper respiratory tract infection.

Question:

A 54-year-old woman attends her GP, complaining of several months of gradually worsening hearing loss in her right ear. Three days ago, she developed a new ringing sensation in her right ear, as well as stumbling more often at home due to feeling dizzy. The patient's wife remarks that the patient has seemed more expressionless in the last few days, and struggles to smile with the right-hand-side of her mouth.

Her GP organises an MRI scan in order to better visualise the likely location of the lesion.

Given the likely diagnosis, which area is the GP trying to visualise?

A.Cerebellar vermis

B.Cerebellopontine angle

C.Medial geniculate nucleus

D.Outer ear

E.Temporal lobe

Answer:Cerebellopontine angle

Explanation:

Acoustic neuromas are best visualized by MRI of the cerebellopontine angle

Important for meLess important

The correct answer is cerebellopontine angle (CPA). Given the history of gradual onset unilateral hearing loss and tinnitus with accompanying facial weakness, the most likely diagnosis is acoustic neuroma. Acoustic neuromas can form anywhere along the course of the vestibulocochlear (eighth cranial) nerve, which runs through the temporal bone and internal auditory meatus into the posterior fossa of the skull, but they most commonly form in the CPA. This area is best visualised by an MRI scan, as this is less affected by the large amounts of bone in the region than CT scans.

Cerebellar vermis is incorrect. Whilst the patient does have some balance issues in the history, which could be in keeping with truncal ataxia from a vermis lesion, the constellation of symptoms is most likely to be an acoustic neuroma due to the hearing loss, tinnitus, and facial weakness, and absence of cerebellar symptoms. Cerebellar symptoms are best remembered with the mnemonic DANISH: dysdiadochokinesia, ataxia, nystagmus, intention tremor, slurred speech, and hypotonia. In addition, lesions of the vermis (central part of the cerebellum) produce truncal, or central, ataxia. By contrast, lesions of the cerebellar hemispheres, which are more peripheral, cause limb ataxia.

Medial geniculate nucleus (MGN) is incorrect - this is the relay centre for auditory processing but is not involved in acoustic neuromas. The MGN relays information from the inferior colliculus, which itself receives auditory sensory information from the cochlea, and relays it to the auditory cortex, located in the temporal lobe. It is part of the thalamic sensory relay apparatus.

Outer ear is incorrect. Acoustic neuromas are best visualised by looking at the CPA and do not form in the outer ear, as they form along the vestibulocochlear nerve and this begins at the cochlea in the inner ear.

Temporal lobe is incorrect. Whilst this is the location of the auditory cortex, this region is not involved in acoustic neuromas. However, lesions to or dysfunction of the temporal lobe, such as a stroke or focal epilepsy, can cause disturbances in hearing. The fact that this patient also has vestibular symptoms (dizziness) and symptoms of facial nerve compression (unilateral facial weakness) point away from a temporal lobe lesion.

Question:

A mother brings her 6 year-old son to clinic with a widespread rash. You diagnose chickenpox. You know his mother, who is also a patient at the practice, is currently 20 weeks pregnant with her second child. What action should you take, if any, regarding her exposure to chickenpox?

A.No action required

B.Arrange extra scans

C.Offer her varicella vaccination

D.Enquire as to her chickenpox history

E.Offer her varicella immunoglobulin

Answer:Enquire as to her chickenpox history

Explanation:

You should ask pregnant women exposed to chickenpox if they have had the infection before. If they say no or are unsure, varicella antibodies should be checked. If it is confirmed they are not immune, varicella immunoglobulin should be considered. It can be given at any point in pregnancy and is effective up to 10 days after exposure.

Source: Green Book Chapter 34

https://www.gov.uk/government/uploads/system/uploads/attachmentdata/file/456562/GreenBookChapter34v30.pdf

Question:

A 23-year-old man attends the emergency department with a headache which he describes as worse when standing and improves when lying flat. The headache is described as moderate in severity and he denies any visual changes, photophobia, neck stiffness, or any other neurological changes. He has a past medical history of Marfan's syndrome. He takes no regular medication and has not been using analgesia for his headache. On examination, he has no neurological compromise including unremarkable fundoscopy. What is the most likely diagnosis?

A.Cluster headache

B.Idiopathic intracranial hypertension

C.Medication overuse headache

D.Migraine

E.Spontaneous intracranial hypotension

Answer:Spontaneous intracranial hypotension

Explanation:

Low CSF headaches can occur due to spontaneous intracranial hypotension (not necessarily post-LP) and are classically worse on standing and improve when lying flat

Important for meLess important

Low CSF headaches can occur due to spontaneous intracranial hypotension (not necessarily post-LP) and are classically worse on standing and improve when lying flat. They are a rare cause of a headache but the diagnosis should be clear from the history. Based on the character of the headaches and a lack of associated features, all the other types of headache can be excluded.

Question:

An 80-year-old woman attends the emergency department with a 2-day history of lethargy and abdominal pain. She is usually independent of all activities but has been unable to mobilise beyond 50 metres due to lethargy. There is no past medical history.

On examination, she is pale. Her heart rate is 80 beats/min with a blood pressure of 120/54mmHg. There is epigastric tenderness on palpation of her abdomen.

Investigations:

Hb 79 g/L (115 - 160)

Platelets 222 \* 109/L (150 - 400)

WBC 10.1 \* 109/L (4.0 - 11.0)

Ferritin 55 ng/mL (20 - 230)

Urea 12.5 mmol/L (2.0 - 7.0)

Creatinine 67 µmol/L (55 - 120)

What is the most appropriate management of this patient?

A.Blood transfusion

B.Colonoscopy within 24 hours

C.Intravenous proton pump inhibitor infusion

D.Oesophagogastroduodenoscopy (OGD) within 24 hours

E.Refer for outpatient OGD under 2 week rule

Answer:Oesophagogastroduodenoscopy (OGD) within 24 hours

Explanation:

All patients with suspected upper GI bleed require an endoscopy within 24 hours of admission

Important for meLess important

Oesophagogastroduodenoscopy (OGD) within 24 hours is correct. This patient has presented with symptomatic anaemia. Given the acute nature of her presentation and the epigastric tenderness and urea rise, it is likely that the cause of this patient's presentation is an acute upper gastrointestinal bleed. Any patient with a suspected upper gastrointestinal bleed (particularly those that are symptomatic), should have an inpatient endoscopy within 24 hours. As the observations show that the patient is haemodynamically stable, an OGD can take place within 24 hours, rather than an emergency scope within the next couple of hours.

Blood transfusion is incorrect. Although this patient has presented with an upper gastrointestinal bleed, guidelines state that a blood transfusion should not take place unless the Hb < 70 g/L (or < 80 g/L if there is a history of ischaemic heart disease). Given that this patient has a Hb of 79 g/L, a blood transfusion is not needed at this stage.

Colonoscopy within 24 hours is incorrect. The isolated urea rise is more suggestive of an acute upper gastrointestinal bleed rather than a lower gastrointestinal bleed. Therefore, a colonoscopy within 24 hours is not necessary at this stage.

Intravenous proton pump inhibitor infusion is incorrect. NICE guidelines do not recommend commencing a PPI infusion prior to endoscopy for patients with suspected non-variceal upper gastrointestinal haemorrhage. Rather, it can be commenced post-endoscopy.

Refer for outpatient OGD under 2 week rule is incorrect. It would be necessary if the patient had suspected gastrointestinal malignancy and needed review within the 2-week wait period. However, in patients with an acute upper gastrointestinal bleed, waiting for 2 weeks until the investigation is too long and potentially life-threatening.

Question:

A 27-year-old man presents to the emergency department with headache, lethargy and fever. Physical examination reveals pain during neck flexion. A head CT scan is normal, but the evaluation of cerebrospinal fluid obtained by lumbar puncture reveals encapsulated organisms visible by India ink.

What is the most likely causative organism?

A.Mycobacterium tuberculosis

B.Streptococcus pneumoniae

C.Neisseria meningitidis

D.Cryptococcus neoformans

E.Toxoplasma gondii

Answer:Cryptococcus neoformans

Explanation:

Cryptococcus neoformans - stains with India ink

Important for meLess important

The clinical presentation raises a suspicion of meningitis. Streptococcus pneumoniae, Neisseria meningitidis, Mycobacterium tuberculosis and Cryptococcus neoformans are causative organisms of meningitis. The India ink stain on cerebrospinal fluid (CSF) analysis points towards Cryptococcus neoformans as the causative organism. Streptococcus pneumoniae would have a gram-positive stain while Neisseria meningitidis would have a gram-negative stain. Mycobacterium tuberculosis would have a Ziehl–Neelsen (acid-fast) stain. In toxoplasmosis, the head CT usually shows single or multiple ring enhancing lesions, and mass effect may be seen. The head CT scan is normal in this scenario.

Question:

A 43-year-old lady is recovering following a live donor related renal transplant. She has significant abdominal pain. Which of the following analgesic drugs should be avoided?

A.Paracetamol

B.Morphine

C.Nefopam

D.Diclofenac

E.Co-codamol

Answer:Diclofenac

Explanation:

Non steroidal anti inflammatory drugs may be nephrotoxic and therefore are usually avoided in patients who have undergone renal transplants. Paracetamol and morphine are metabolised predominantly in the liver. There is some renal contribution to morphine metabolism and excretion and the drug should be administered in reduced doses or avoided if the transplanted kidney stops functioning.

Question:

Which one of the following side-effects is more common with atypical than conventional anti-psychotics?

A.Akathisia

B.Weight gain

C.Galactorrhoea

D.Parkinsonism

E.Tardive dyskinesia

Answer:Weight gain

Explanation:

Atypical antipsychotics commonly cause weight gain

Important for meLess important

Question:

You are reviewing a patient who is complaining of hip pain. You suspect a diagnosis of osteoarthritis. Which of the following symptoms should prompt further investigations for an alternative diagnosis?

A.A 6-month history of symptoms

B.The patient being 59-years-old

C.A history of development dysplasia of the hip

D.Morning stiffness lasting 4 hours

E.A body mass index of 33 kg/m²

Answer:Morning stiffness lasting 4 hours

Explanation:

Morning stiffness lasting > 2 hours may be an indication of inflammatory arthritis. This would warrant further investigations.

Question:

You are asked to review a neonate with a postnatal diagnosis of congenital diaphragmatic hernia. They are now stable, having had initial medical management. The baby's parents have done some background reading on the condition and have some questions for you. Which of the following statements regarding congenital diaphragmatic hernia is true?

A.Once repaired, there is no risk of recurrence.

B.Congenital diaphragmatic hernias are equally common on the left and right.

C.A significant consequence of congenital diaphragmatic hernia is systemic hypertension.

D.The presence of the liver in the thoracic cavity is a poor prognostic factor for CDH

E.There is no increased risk in a younger sibling if an older sibling had CDH.

Answer:The presence of the liver in the thoracic cavity is a poor prognostic factor for CDH

Explanation:

The presence of the liver in the thoracic cavity is a poor prognostic factor for CDH

Important for meLess important

The outcome or prognosis of a patient with CDH is largely dependent on 2 factors

(1) Liver position

(2) Lung-to-head ratio

If the liver has herniated into the chest, the disease is more severe and there is lower chance of survival.

The lung-to-head ratio is a numeric estimate of the size of the foetal lungs, dependent on the amount of lung visible. A ratio >1.0 reflects a better outcome.

Risk of recurrence is possible in CDH, and is dependent on severity of the defect.

CDH is significantly more common on the left hand side. 85% of cases occur on the left, 13% on the right and 2% bilaterally.

Pulmonary hypertension, rather than systemic hypertension, is a risk of CDH.

There is increased risk where there is a positive family history in a sibling.

Question:

A 73-year-old woman is referred to the breast clinic with a painless lump in her left breast. She undergoes triple assessment and is subsequently diagnosed with oestrogen receptor-positive breast cancer. Her oncologist starts her on anastrozole as treatment.

Which of the following does this medication increase her risk of?

A.Amenorrhoea

B.Endometrial cancer

C.Osteoporosis

D.Vaginal bleeding

E.Venous thromboembolism

Answer:Osteoporosis

Explanation:

Aromatase inhibitors (e.g. anastrozole) may cause osteoporosis

Important for meLess important

The correct answer is 'osteoporosis'.

Anastrozole is an aromatase inhibitor used for the treatment of oestrogen receptor-positive breast cancer in postmenopausal women, such as this patient. Aromatase inhibitors reduce peripheral oestrogen synthesis, which accounts for the majority of oestrogen production in postmenopausal women. Patients taking these medications are at an increased risk of osteoporosis.

Amenorrhoea, endometrial cancer, vaginal bleeding and venous thromboembolism are all potential side effects of selective oestrogen receptor modulators (SERM) such as tamoxifen. Tamoxifen is used to treat oestrogen receptor-positive breast cancer in pre-menopausal women.

Question:

A 56-year-old man from Pakistan presents to his GP with numbness and tingling in his feet for 1 week. He tells you he has recently started some new medications. Looking at his medical history you discover he has recently been diagnosed with tuberculosis and hypertension.

Which of the following medications are most likely to be causing the problem?

A.Rifampicin

B.Amlodipine

C.Ramipril

D.Isoniazid

E.Pyrazinamide

Answer:Isoniazid

Explanation:

Peripheral neuropathy is a commonly recognised side effect of isoniazid. Although paraesthesia is listed under the side effects for amlodipine in the BNF, it is uncommon. In this case isoniazid is the most likely answer.

Drug Most common side effects

Rifampicin Orange bodily fluids, rash, hepatotoxicity, drug interactions

Isoniazid Peripheral neuropathy, psychosis, hepatotoxicity

Pyrazinamide Arthralgia, gout, hepatotoxicity, nausea

Ethambutol Optic neuritis, rash

Source: BNF

Question:

A 58-year-old man presents with breathlessness and chest discomfort. He has diet controlled diabetes, hypertension and hyperlipidaemia. He has a weak rapid, regular pulse of 160bpm, blood pressure is 80/50mmHg, he is cold peripherally and crepitations are heard bibasally on auscultation of the chest. An ECG shows a regular broad complex tachycardia.

What is the best initial management of this arrhythmia?

A.Adenosine

B.Amiodarone

C.Diltiazem

D.Electrical cardioversion

E.Vagal manoeuvres

Answer:Electrical cardioversion

Explanation:

In the context of a tachyarrhythmia, a systolic BP < 90 mmHg → DC cardioversion

Important for meLess important

This patient presents with a regular broad complex tachycardia with a palpable pulse and the adverse feature of shock (systolic blood pressure <90mmHg), therefore a synchronised DC cardioversion is indicated. If this patient had no adverse features an intravenous amiodarone infusion would be indicated.

Intravenous adenosine and vagal manoeuvres (e.g carotid massage, Valsalva manoeuvre) are indicated for the termination of a regular narrow complex tachycardias.

Diltiazem may be used for rate control in atrial fibrillation.

See: ALS guidelines, peri arrest arrhythmias, resuscitation council, UK.

https://www.resus.org.uk/resuscitation-guidelines/peri-arrest-arrhythmias/

Question:

A 48-year-old woman with rheumatoid arthritis presents with a several-day history of painful, watering red eye and blurred vision. She is myopic and has a family history of glaucoma. You diagnose scleritis.

What complication is she at risk of?

A.Decreased intraocular pressure

B.Entropion

C.Episcleritis

D.Perforation of the globe

E.Recurrent conjunctivitis

Answer:Perforation of the globe

Explanation:

Scleritis can lead to perforation of the globe

Important for meLess important

This woman has scleritis. She requires ophthalmology input within 24 hours.

Perforation of the globe can occur in severe cases of necrotising scleritis. Other complications of scleritis include glaucoma, cataracts, raised intraocular pressure, retinal detachment, and uveitis.

Decreased intraocular pressure is incorrect. Scleritis can lead to raised intraocular pressure, not decreased.

Entropion is incorrect. This describes the eyelashes growing inwards towards the eye. This can cause eye watering and irritation but would not affect vision and is not a complication of scleritis.

Episcleritis is an inflammatory condition of the episclera, often causing a wedge shape of redness in the eye and mild discomfort. It does not affect vision and can be managed within primary care. Episcleritis is not a complication of scleritis.

Recurrent conjunctivitis is incorrect. This does cause a watering, red eye but is not painful and does not affect vision. It is not a complication of scleritis.

Question:

A 75-year-old woman is seen in clinic with a 3-month history of recurrent respiratory tract infections. She denies weight loss or night sweats. She has a 20-year history of rheumatoid arthritis and takes methotrexate and sulfasalazine.

Her pulse is 95 bpm, her blood pressure is 132/85 mmHg and she is afebrile. Splenomegaly is present and there is mild synovitis of the wrists and hands.

Blood tests show:

Hb 113 g/L (115 - 160)

Platelets 160 \* 109/L (150 - 400)

WBC 2.8 \* 109/L (4.0 - 11.0)

Neuts 0.8 \* 109/L (2.0 - 7.0)

Lymphs 1.5 \* 109/L (1.0 - 3.5)

Mono 0.3 \* 109/L (0.2 - 0.8)

Eosin 0.2 \* 109/L (0.0 - 0.4)

ESR 62 mm/hr (<40)

Based on her features, what is the most likely underlying cause?

A.Chronic lymphocytic leukaemia

B.Felty's syndrome

C.Hodgkin's lymphoma

D.Methotrexate use

E.Sulfasalazine use

Answer:Felty's syndrome

Explanation:

Felty’s syndrome is defined as RA, splenomegaly and low white cell count

Important for meLess important

Felty's syndrome is correct. This is an extra-articular manifestation of rheumatoid arthritis (RA) that tends to occur in patients with longstanding RA and is characterised by a triad of neutropaenia, a low white cell count and splenomegaly. Neutropaenia can lead to recurrent infections, as seen in this patient, and splenomegaly can lead to anaemia due to the increased turnover of red blood cells and neutrophils. These features are present in this patient, making this diagnosis most likely.

Chronic lymphocytic leukaemia (CLL) is incorrect as patients with CLL have lymphocytosis (increased lymphocytes) which is not seen here. As well as this, patients may have unexplained weight loss and night sweats and may have anaemia and thrombocytopenia, which are not seen here.

Hodgkin's lymphoma is incorrect as this presents with lymphadenopathy and patients may have fatigue, unexplained weight loss, and night sweats. These features are not seen here. Splenomegaly is less common and is generally seen in advanced disease.

Methotrexate use and Sulfasalazine use are incorrect. Although these two drugs can cause myelosuppression which can cause neutropaenia, they do not cause splenomegaly which is present in this patient.

Question:

Louise attends surgery with her 12-year-old son Dominic, who has a background of well-controlled asthma but is otherwise well. He had all his routine childhood immunisations to date. He has recently received an reminder to have his flu vaccine.

What other vaccination should he receive at this age?

A.Human Papilloma Virus (HPV)

B.Measles, mumps and rubella (MMR)

C.Meningitis ACWY

D.Pneumococcal

E.Tetanus, diphtheria and polio

Answer:Human Papilloma Virus (HPV)

Explanation:

All boys aged 12-13 (school year 8) are now offered the HPV vaccine as well as girls

Important for meLess important

The HPV vaccine is now part of the routine immunisation schedule for both boys and girls aged 12-13, so he should receive this vaccine this year.

Both the meningitis ACWY and tetanus, diphtheria and polio vaccines are given at 14 years (school year 9) so these options are incorrect.

The MMR vaccine is given at 1 year and again at 3 years and 4 months - as Dominic is up to date with his routine immunisations this option is incorrect.

The pneumococcal vaccine is offered to 65-year-olds, so this option is incorrect.

Question:

Whilst reviewing an elderly patient in a GP practice, you note the following blood test results:

Hb 90 g/L Male: (135-180)

Female: (115 - 160)

Mean Cell Volume (MCV) 75 fL (80 - 96)

Platelets 350 \* 109/L (150 - 400)

WBC 9.0 \* 109/L (4.0 - 11.0)

Na+ 137 mmol/L (135 - 145)

K+ 3.7 mmol/L (3.5 - 5.0)

Urea 14.0 mmol/L (2.0 - 7.0)

Creatinine 74 µmol/L (55 - 120)

CRP 2.3 mg/L (< 5)

What is the most likely diagnosis?

A.Anaemia of chronic disease

B.Chronic kidney disease

C.Iron deficiency anaemia

D.Lower gastrointestinal bleed

E.Upper gastrointestinal bleed

Answer:Upper gastrointestinal bleed

Explanation:

High urea levels can indicate an upper GI bleed versus lower GI bleed

Important for meLess important

Whilst this could be either iron deficiency anaemia or anaemia of chronic disease, neither of these explain the raised urea.

Chronic kidney disease would cause a proportional rise in creatinine in addition to the raised urea.

A lower gastrointestinal (GI) bleed would not cause the same raised urea as an upper GI bleed. The raised urea is caused by the large protein 'meal' of blood in the upper GI tract, which is digested.

Question:

A 62-year-old-year-old man is brought to the emergency department by his neighbour. He is complaining of a headache and neck stiffness. His neighbour reports she grew concerned when she found him confused at home.

On examination, the patient withdraws from light and appears drowsy. Neurological examination is otherwise normal. His temperature is 40.1ºC.

Blood cultures and a lumbar puncture are taken and the results are awaited.

Given the likely diagnosis, what treatment should be initiated?

A.IV amoxicillin and gentamicin

B.IV benzylpenicillin

C.IV cefotaxime and amoxicillin

D.IV ciprofloxacin

E.IV gentamicin

Answer:IV cefotaxime and amoxicillin

Explanation:

The BNF recommend IV cefotaxime (or ceftriaxone) + amoxicillin (or ampicillin) as empirical therapy for adults > 50 years with suspected bacterial meningitis

Important for meLess important

This patient is presenting with a likely diagnosis of meningitis. He is presenting with a headache, neck stiffness, a fever, photophobia, and drowsiness. These are all symptoms indicative of meningitis. If you suspect a patient has meningitis, you should start empirical therapy for bacterial meningitis immediately.

IV cefotaxime and amoxicillin is correct. This is the empirical therapy for adults with a suspected diagnosis of bacterial meningitis. Therefore, this treatment should be initiated as soon as possible.

IV amoxicillin and gentamicin is incorrect. This is the treatment for meningitis caused by Listeria. As we are unsure of the causative organism in this patient, we should treat empirically first whilst awaiting for the organism to be determined.

IV benzylpenicillin is incorrect. This is the treatment for meningococcal meningitis. However, we are unsure of the causative organism in this patient, we should treat empirically first whilst awaiting for the organism to be determined. Benzylpenicillin can also be given IM in a primary care setting (i.e., GP) whilst transferring to the hospital for further treatment.

IV ciprofloxacin is incorrect. Ciprofloxacin is used to treat patients who are in close contact of those with confirmed bacterial meningitis and this is usually given orally. You can remember this by thinking the 'P' in ciprofloxacin is for prevention and the 'T' in cefotaxime is for treatment.

IV gentamicin is incorrect. Gentamicin can be used in combination with amoxicillin to treat meningitis caused by Listeria. However, as we do not know the causative organism yet we must treat empirically. Furthermore, there is no indication for treatment with just gentamicin.

Question:

A 44-year-old woman attends a medication review with her general practitioner. She reports a weight gain of 10 kg. She has a past medical history of type 2 diabetes, depression, epilepsy obesity and previously surgically treated breast cancer. She takes sitagliptin, gliclazide, topiramate, liraglutide and fluoxetine.

The examination is unremarkable other than an elevated body mass index of 35 kg/m².

What medication is responsible for her symptoms?

A.Fluoxetine

B.Gliclazide

C.Liraglutide

D.Sitagliptin

E.Topiramate

Answer:Gliclazide

Explanation:

Sulfonylureas often cause weight gain

Important for meLess important

Gliclazide is correct. This medication can cause weight gain and so is best avoided in those patients with diabetes and obesity.

Fluoxetine is incorrect. This is associated with weight loss rather than weight gain. Mirtazapine is an antidepressant that causes weight gain.

Liraglutide is incorrect . This medication is typically associated with weight loss.

Sitagliptin is incorrect. This does not cause weight gain and so is a more suitable choice in patients who are overweight with type 2 diabetes.

Topiramate is incorrect. This medication used in the treatment of epilepsy causes weight loss.

Question:

A 35-year-old female presents with pain on the radial side of the wrist and tenderness over the radial styloid process. On examination, abduction of the thumb against resistance is painful, and when the thumb is flexed across the palm of the hand, pain is reproduced by movement of the wrist into flexion and ulnar deviation. What is the most likely diagnosis?

A.Carpal tunnel syndrome

B.De Quervain's tenosynovitis

C.Polymyalgia rheumatica

D.Rheumatoid arthritis

E.Flexor tenosynovitis

Answer:De Quervain's tenosynovitis

Explanation:

Finkelstein's test: the examiner pulls the thumb of the patient in ulnar deviation and longitudinal traction. In a patient with tenosynovitis this action causes pain over the radial styloid process and along the length of extensor pollisis brevis and abductor pollicis longus

Important for meLess important

1 - Incorrect. The test described in the question is not Tinel's sign which would be the clinical test used to diagnose carpel tunnel syndrome.

2 - Correct. The question describes a positive Finkelstein test. De Quervain's tenosynovitis is pain over the radial styloid process due to inflammation of the sheath containing the extensor pollicis brevis and abductor pollicis longus tendons.

3 - Incorrect. Polymyalgia rheumatica typically presents with pain in the shoulder and pelvic muscle girdles but with normal power.

4 - Incorrect. Rheumatoid arthritis usually presents with pain in the metacarpophalangeal joints (MCP) and the proximal interphalangeal joints (PIP).

5 - Incorrect. Flexor tenosynovitis is diagnosed by Kanavel signs (the affected finger is held in slight flexion; there is uniform swelling over the affected tendon; there is tenderness over the affected tendon; there is pain on passive extension of the affected finger)

Question:

A 65-year-old woman is admitted to the Emergency department with sepsis and is also found to have an acute kidney injury. Which of the following would be the most likely finding on her arterial blood gas?

A.pH 7.32, pCO2 7.3kPa, pO2 12.1kPa, HCO3- 24mmol/L

B.pH 7.52, pCO2 2.0kPa, pO2 11.8kPa, HCO3- 24mmol/L

C.pH 7.05, pCO2 2.1kPa, pO2 12.0kPa, HCO3- 8.00mmol/L. Calculated anion gap is 14mmol/L.

D.pH 7.12, pCO2 3.1kPa, pO2 11.8kPa, HCO3- 6.2mmol/L. Calculated anion gap is 26mmol/L.

E.pH 7.48 pCO2 6.1kPa, pO2 11.7kPa, HCO3- 32mmol/L

Answer:pH 7.12, pCO2 3.1kPa, pO2 11.8kPa, HCO3- 6.2mmol/L. Calculated anion gap is 26mmol/L.

Explanation:

Patients who have sepsis often have a raised serum lactate due to the hypoperfusion of their peripheries. This gives them a metabolic acidosis with a raised anion gap.

In patients with a metabolic acidosis, it can be helpful to calculate the anion gap in order to identify the cause of the metabolic acidosis. This is calculated as the difference between plasma cations (Na+ and K+) and anions (Cl- and HCO3-). The normal range is 10-18mmol/L.

If the anion gap is raised, this suggests that there is increased production, or reduced excretion, of fixed/ organic acids e.g.

Lactic acid (sepsis, tissue ischaemia)

Urate (renal failure)

Ketones (diabetic ketoacidosis)

Drugs/ toxins (salicylates, methanol, ethylene glycol)

If there is a metabolic acidosis with a normal anion gap, then this is either due to loss of bicarbonate, or accumulation of H+ ions. Causes include:

Renal tubular acidosis

Diarrhoea

Addison's disease

Pancreatic fistula

Question:

A 50-year-old man has requested a sexual health check-up after recently entering into a relationship with another man. He does not have any symptoms of a sexually transmitted infection (STI) and is otherwise well with no long-term health conditions. His partner has already undergone STI testing which was negative.

Besides performing a sexual health screen, what other intervention should be opportunistically offered to this patient?

A.HIV vaccination

B.Hepatitis A vaccination

C.Hepatitis C vaccination

D.Influenza vaccination

E.Pneumococcal vaccination

Answer:Hepatitis A vaccination

Explanation:

Men who have sex with men should be offered immunisation against hepatitis A

Important for meLess important

Vaccination against hepatitis A is recommended for certain people at increased risk of infection, including men who have sex with men (MSM). Other at-risk groups include:

Close contacts (household or sexual) of infected persons

Travellers to countries where hepatitis A is common

People with chronic liver disease

Injecting drug users

People with haemophilia

Those with high-risk of occupational hepatitis A exposure e.g. sewage workers, people who work for organisations where personal hygiene may be poor (e.g. homeless shelters), and people working with primates

There is currently no hepatitis C or HIV vaccine available. This patient does not meet any NHS eligibility criteria for influenza or pneumococcal vaccination.

Question:

A 65-year-old man presents to his general practitioner with pain, bruising and swelling of his left shoulder. This started 2 days ago while he was taking down a heavy box from a high shelf. He describes hearing a popping sound which was then followed by severe pain. He is a current smoker and has taken multiple corticosteroid courses for COPD exacerbations over the past year. On examination, there is a bulge in the middle of the upper arm, and there is also weakness in the shoulder and elbow, with a particular difficulty with supination.

What is the diagnosis in this patient?

A.Biceps tendon rupture

B.Humeral fracture

C.Impingement syndrome

D.Radial head fracture

E.Shoulder dislocation

Answer:Biceps tendon rupture

Explanation:

Biceps rupture may lead to a 'Popeye' deformity in the middle of the upper arm

Important for meLess important

Biceps tendon rupture is correct. This is the classical history of a proximal bicep rupture, i.e. the long tendon of biceps. The description of a pop, as well as the injury history, fit this diagnosis. The patient also has risk factors for this: smoking, steroid use. Examination findings are also consistent.

Humeral fracture is incorrect. There is no history of trauma to cause a fracture.

Impingement syndrome is incorrect. The typical findings on examination would be a painful abduction arc, at the level above the shoulder.

Radial head fracture is incorrect. There is no history of trauma to cause a fracture and the location of pain would be more distal.

Shoulder dislocation is incorrect. Again no trauma to suggest a possible dislocation. There would be a very limited range of movement and the patient would be in severe pain. If the shoulder is anteriorly dislocated, the arm is in slight abduction and external rotation.

Question:

A 32-year-old man has been visiting his general practice (GP) frequently due to persistently high blood pressure at 150/100 mmHg despite being started on anti-hypertensive medications. He occasionally complains of recurrent urinary tract infections. On further questioning regarding his family history, he reported several family members having renal conditions diagnosed at a young age. His father and grandfather have heart problems and died from a stroke, both as a complication from the inherited renal condition. His GP thus arranged for an ultrasound scan of his abdomen and urinary tract which showed multiple cysts on both kidneys.

What is the most common extrarenal manifestation of this likely condition?

A.Liver cysts

B.Intracranial berry aneurysms

C.Mitral valve collapse

D.Thyroid cysts

E.Hydronephrosis

Answer:Liver cysts

Explanation:

Liver cysts are the commonest extra-renal manifestation of ADPKD

Important for meLess important

Liver cysts develop in 80% of the patients diagnosed with ADPKD. Symptoms tend to result from mass effects or cyst complications. In this scenario, the patient has persistent hypertension despite being on anti-hypertensive medications. This is accompanied by recurrent UTIs and an ultrasound scan showing multiple cysts on both kidneys. This patient is likely to be suffering from ADPKD. Hence, liver cysts will be the commonest extra-renal manifestation of ADPKD.

Intracranial berry aneurysms is a type of extra-renal manifestation in patients with ADPKD, however, it only occurs in less than 16% of the patients. Hence, it will not be the commonest extra-renal manifestation of ADPKD.

Mitral valve collapse is also a type of extra-renal manifestation in patients with ADPKD, but it can be found in up to 25% of the patients which is less than liver cysts. Hence, it will not be the commonest extra-renal manifestation of ADPKD.

Thyroid cysts are a very rare presentation of extra-renal manifestation in patients with ADPKD. Comparing to the other options in this question, this will be the least likely extra-renal manifestation of ADPKD.

Hydronephrosis is a common renal manifestation of ADPKD. However, in this scenario, the question is asking about extra-renal manifestation, hence it will not answer the question.

Question:

A 21-year-old woman is re-reviewed by her GP for generalised anxiety disorder (GAD). At her last review, she was given information about GAD and referred for individual guided self-help. Unfortunately, despite these treatments, she still reports feeling worried 'about most things' for most of the day. She struggles to relax and her family has noticed that she is more irritable.

The patient is keen to try further treatment, however this time she would rather try a medication.

What medication would be most appropriate to prescribe for this patient?

A.Citalopram

B.Diazepam

C.Fluoxetine

D.Sertraline

E.Venlafaxine

Answer:Sertraline

Explanation:

Sertraline is the first-line drug for generalised anxiety disorder

Important for meLess important

This patient displays typical features of GAD including feeling anxious most of the time, feeling restless, and feeling irritable. Once physical causes of anxiety - such as thyroid disease and medication-induced - have been ruled out, GAD is treated in a stepwise approach. Step 1 is to give the patient education about GAD and to monitor their condition. Step 2 is to give the patient a low-intensity psychological intervention. Unfortunately, the patient has completed both of these steps with no improvement. She requires step 3 of treatment. Step 3 is either a high-intensity psychological intervention (such as cognitive behavioural therapy) or drug treatment, depending on the patient's choice. This patient has made it clear that she would prefer drug treatment. The first line-drug treatment for GAD is a selective serotonin reuptake inhibitor (SSRI). NICE guidelines for GAD (2019) suggest that sertraline should be considered the first-line SSRI for GAD as it is the most cost-effective drug. Sertraline is, therefore, the correct answer.

Citalopram is also an SSRI, however, it is not the SSRI that NICE recommend trialling first for GAD. If a patient with GAD cannot tolerate sertraline or it is not effective, NICE recommend offering an alternative SSRI or an SNRI (serotonin-norepinephrine reuptake inhibitor). In this case, citalopram would be an appropriate choice.

Diazepam is a benzodiazepine. NICE recommend that benzodiazepines should not be given for GAD. This is due to the risk of dependence. The only exception is that they may be given short-term in a crisis. However, this is not applicable to this case.

Like citalopram, fluoxetine is an SSRI that may be used as a second-line treatment for GAD. It is not recommended as a first-line treatment.

Venlafaxine is an SNRI, a similar drug to SSRIs. An SNRI may be offered if a patient does not improve with or cannot tolerate the first-line SSRI, sertraline. It would not be given first-line so is not the correct answer for this patient.

Question:

A 65-year-old woman presents with vomiting and diarrhoea. Blood tests show an acute kidney injury (AKI) - as per below. These were normal when checked by her GP as part of an annual review 2 weeks ago. She is started on intravenous fluids and a renal ultrasound scan is requested.

Creatinine 156 umol/l

Urea 8 mmol/l

eGFR 29 ml/min

Which of her medications is it most important to stop until her renal function normalises?

A.Ramipril

B.Amlodipine

C.Simvastatin

D.Insulin

E.Aspirin

Answer:Ramipril

Explanation:

This lady has an acute kidney injury, most likely pre-renal, secondary to dehydration. Kidney function is considered as how well the glomerulus filters blood. The rate at which this occurs (glomerular filtration rate, GFR) depends on the perfusion pressure of the glomerulus. This, in turn, is dependent on 2 things - overall blood flow to the kidney (reduced in case of hypovolaemia and dehydration) and 'auto-regulation' of the afferent and efferent arterioles to 'fine-tune' the pressure.

The afferent arteriole can dilate (to increase flow) and this is mediated by prostaglandin E2. The efferent arteriole can constrict (to increasing pressure) and this is mediated by angiotensin II.

Non-steroidal anti-inflammatory drugs block prostaglandin E2 and thus disrupts this auto-regulation, contributing to AKI. The exception to this is oral aspirin which spares the kidney. Drugs that block angiotensin II such as Angiotensin-converting enzyme inhibitors (ACEI) e.g. Ramipril and angiotensin receptor blockers (ARB) disrupt auto-regulation through the above mechanism and thus should be held during an AKI.

In chronic kidney disease (CKD) however, ACEIs and ARBs are beneficial through their antihypertensive and anti-inflammatory actions. In CKD, glomerular perfusion pressures are elevated. Reducing this pressure helps to prevent glomerular damage and decline in GFR.

For more information see: http:gpcpd.walesdeanery.org/index.php/drugs-that-can-be-continued-safely-in-aki

Question:

A 59-year-old man books a routine appointment with you following an appointment with your surgery's diabetes nurse. He was diagnosed with type-2 diabetes three years ago and currently takes metformin. A blood pressure (BP) check with the nurse gave a BP of 158/82 mmHg. A subsequent home BP diary showed an average of 146/86 mmHg.

He has no other medical problems. He has never taken blood pressure medicines previously and has no known allergies. His most recent bloods showed an eGFR of 84 ml/min/1.73 m². He is of African-Caribbean ethnicity.

What is the most appropriate first line antihypertensive medication?

A.Amlodipine

B.Doxazosin

C.Indapamide

D.Losartan

E.Ramipril

Answer:Losartan

Explanation:

An angiotensin II receptor blocker should be used first-line for black TD2M patients who are diagnosed with hypertension

Important for meLess important

Hypertension in patients with diabetes is treated slightly different to those without. NICE advises use of an angiotensin-converting enzyme (ACE) inhibitor such as ramipril or an angiotensin II receptor blockers (ARB) such as losartan as a first line in all patients with diabetes, regardless of age. NICE also recommends in patients of black African or African-Caribbean to use an ARB in preference to an ACE inhibitor, hence losartan is the correct answer.

Amlodipine is a calcium-channel blocker, it would be an appropriate first line medication in those of black African or African-Caribbean family origin without diabetes or those of other ethnic backgrounds aged over 55.

Doxazosin is an alpha blocker and generally used as a fourth line antihypertensive.

Indapamide is a thiazide diuretic and generally used as a third line antihypertensive.

Question:

A 65-year-old lady presents with a lesion affecting her right breast. On examination she has a weeping, crusting lesion overlying the right nipple, the areolar region is not involved. There is no palpable mass lesion in the breast, there is a palpable axillary lymph node. The patient's general practitioner has tried treating the lesion with 1% hydrocortisone cream, with no success. What is the most likely diagnosis?

A.Infection with Staphylococcus aureus

B.Pagets disease of the nipple

C.Phyllodes tumour

D.Nipple eczema

E.Basal cell carcinoma

Answer:Pagets disease of the nipple

Explanation:

A weeping, crusty lesion such as this is most likely to represent Pagets disease of the nipple (especially since the areolar region is spared). Although no mass lesion is palpable, a proportion of patients will still have an underlying invasive malignancy (hence the lymphadenopathy).

Question:

A 58-year-old male presents to the emergency department with abdominal discomfort. He has been experiencing a very mild 'ache' in the upper part of his abdomen, which he rates as being a 2 out of 10. Other than the discomfort he feels generally well in himself. His past medical history includes peripheral arterial disease, type 2 diabetes mellitus, and hypertension.

On examination, his pulse is regular, his heart rate is 65 beats per minute, and his oxygen saturations are 92% on air. You send a set of routine bloods and perform an ECG, which shows ST elevation of 2.1mm in leads V2-3 and a left bundle branch block.

Which of the following initial treatments should be offered to this patient?

A.Glyceryl trinitrate (GTN), aspirin, and intravenous morphine sulfate

B.Glyceryl trinitrate (GTN), aspirin, and oral morphine sulfate

C.Glyceryl trinitrate (GTN), aspirin, oxygen, and ibuprofen

D.Glyceryl trinitrate (GTN), aspirin, oxygen, and diclofenac

E.Glyceryl trinitrate (GTN), aspirin, oxygen, and paracetamol

Answer:Glyceryl trinitrate (GTN), aspirin, oxygen, and paracetamol

Explanation:

ACS management: morphine should only be given for patients with severe pain

Important for meLess important

This patient has an ECG which shows ST elevation of 2.1mm in leads V2-3 and a left bundle branch block - this is therefore an ST-elevated myocardial infarction (STEMI). Although the typical symptoms of central crushing chest pain radiating to the arm/jaw is not featured, you need to be aware that those with diabetes mellitus are at much higher risk for having a silent MI. The reason for this is that cardiac autonomic dysfunction occurs which involves damage to pain receptors, afferent neurons, or higher areas of the brain.

When treating this patient's pain you may have been inclined to follow the typical acute coronary syndrome (ACS) pneumonic of morphine, aspirin, nitrates, and oxygen. However, this patient is presenting with very mild discomfort that is not troubling him. You should therefore prescribe analgesia like with any other patient and start him on the mildest drug - in this case, paracetamol.

Moreover, his oxygen saturations on room air are 92%, therefore this patient would benefit from oxygen therapy. Evidence suggests that unnecessary oxygen therapy in those with an acute MI can lead to bigger infarct sizes, therefore oxygen should only be administered when oxygen saturations are suboptimal (less than 94%). The NICE guidelines recommend a target saturation of 94-98% unless there is evidence of hypercapnic respiratory failure. The correct regime in this patient is, therefore, glyceryl trinitrate (GTN), aspirin, oxygen, and paracetamol.

If this patient did have severe pain then oral morphine would be the most appropriate choice, since intravenous morphine has been associated with more negative outcomes in those with an MI.

Ibuprofen and diclofenac are both non-steroidal anti-inflammatory drugs that are avoided in those with ACS. This is because they will be given an array of antiplatelet drugs, which can interact with NSAIDs to precipitate bleeding (e.g. aspirin, ticagrelor).

Question:

A 70-year-old man is reviewed. For the past two weeks his family report that he has been generally unwell, 'not himself' and lethargic. His past history includes ischaemic heart disease (myocardial infarction 8 years ago), chronic kidney disease (stage 4) and depression (for which he takes imipramine). Physical examination is unremarkable with no new findings. You obtain an ECG:

© Image used on license from Dr Smith, University of Minnesota

Which one of the following is most likely to explain the changes seen on the ECG?

A.Tricyclic overdose

B.Myocardial ischaemia

C.Hyperkalaemia

D.Anaemia

E.Wolff-Parkinson White syndrome

Answer:Hyperkalaemia

Explanation:

The standout feature of this ECG is the tall 'tented' T waves in the anterior leads. This finding is associated with hyperkalaemia.

Question:

James is a 5-year-old boy that needs a blood transfusion following a road traffic collision. His condition is life threatening and he needs immediate resuscitation. James has lost a lot of blood and will die without a transfusion. However, both of his parents are present and are Jehovah's Witnesses. They refuse to give consent for James' blood transfusion. What is the best way to proceed?

A.Try to persuade the parents to give their consent

B.Give the blood transfusion because it is a life threatening situation and it is in James' best interest

C.Seek legal advice on how to proceed with this situation

D.Remove the parents from the room and give the blood transfusion when they are not there

E.Try to get consent from another relative

Answer:Give the blood transfusion because it is a life threatening situation and it is in James' best interest

Explanation:

GMC guidelines state:

'If the patient is a child who lacks capacity to make a decision, and both parents refuse treatment on the grounds of their religious or moral beliefs, you must discuss their concerns and look for treatment options that will accommodate their beliefs. You should involve the child in a way appropriate to their age and maturity. If following a discussion of all the options you cannot reach an agreement, and treatment is essential to preserve life or prevent serious deterioration in health, you should seek advice on approaching the court.'

'In an emergency, you can provide treatment that is immediately necessary to save life or prevent deterioration in health without consent or, in exceptional circumstances, against the wishes of a person with parental responsibility.'

Reference: http://www.gmc-uk.org/guidance/ethicalguidance/21181.asp

Question:

A 35-year-old man has presented to his GP complaining of excessive sweating, headaches, and a feeling of his heart beating in his chest. On measurement of his blood pressure, he is found to be newly hypertensive, on three separate readings. He has a family history of MEN type II.

What is the most appropriate initial investigation for the disease you suspect this man has?

A.24 hour home blood pressure monitoring

B.CT chest, abdomen pelvis

C.MRI head

D.Urinary catecholamines

E.Urinary metanephrines

Answer:Urinary metanephrines

Explanation:

Phaeochromocytoma typically presents with a triad of sweating, headaches, and palpitations in association with severe hypertension

Important for meLess important

This man has presented with the typical triad of phaeochromocytoma- sweating, headaches, and palpitations. This, along with the fact he is newly hypertensive, and has a family history of a condition that predisposes him to it, should make phaeochromocytoma high on your list of differential diagnosis. The best initial investigation for this is urinary metanephrines, which has replaced catecholamines as the investigation that is NICE recommended. CT chest, abdomen and pelvis would be done if metanephrines come back raised.

Question:

A 10-hour-old neonate is reviewed on the neonatal unit, following an uncomplicated vaginal delivery at 34 weeks' gestation. His mother reports no concerns so far.

On examination, he appears well at rest. A left subclavicular thrill is noted, and on auscultation, a continuous 'machinery-like' murmur is heard. He has a large-volume collapsing pulse.

Given the likely diagnosis, an echocardiogram is performed, which demonstrates the defect in question, but no other abnormalities.

What is the most appropriate management at this stage?

A.Give indomethacin to the neonate

B.Give prostaglandin E1 to the neonate

C.Reassure and monitor over the coming weeks

D.Routine surgical referral

E.Urgent surgical referral

Answer:Give indomethacin to the neonate

Explanation:

Patent ductus arteriosus: indomethacin is given to the neonate in the postnatal period, not to the mother in the antenatal period

Important for meLess important

The likely diagnosis here is that of patent ductus arteriosus (PDA), given the findings on examination. The patency of this connection is maintained by prostaglandins, and so the correct answer is to give indomethacin (or ibuprofen) - this will inhibit prostaglandin synthesis and, in the majority of cases, close the PDA.

Giving prostaglandin E1 would achieve the opposite effect - maintaining the patency of the duct. This would be useful if another congenital heart defect were found on investigation that was amenable to surgery; prostaglandin E1 would keep the PDA open until after surgical repair. However, in this scenario, we are told that the echocardiogram is normal, except for the PDA itself.

Reassuring and simply observing over the coming weeks would not be appropriate - indomethacin should be used to actively close the PDA.

A routine surgical referral is not needed at this stage - the first-line management should be to try medical closure of the PDA, which works in the majority of cases.

Similarly, an urgent surgical referral is not warranted - medical management is first-line, and the neonate appears well.

Question:

A 71-year-old man presents with an erythematous, swollen first metatarsophalangeal joint on the left foot. This is causing him considerable pain and he is having difficulty walking. He has never had any previous similar episodes. His past medical history includes atrial fibrillation and type 2 diabetes mellitus and his current medications are warfarin, metformin and simvastatin. What is the most appropriate treatment of this episode?

A.Intra-articular corticosteroid

B.Colchicine

C.Ibuprofen

D.Diclofenac

E.Prednisolone

Answer:Colchicine

Explanation:

NSAIDs should be avoided in elderly patients taking warfarin due to the risk of a life-threatening gastrointestinal haemorrhage. Oral steroids are an option but would upset his diabetic control.

Whilst anticoagulation is not a contraindication to joint injection it would make this option less attractive

Question:

A 53-year-old man is admitted to the respiratory ward with a 4-week history of progressive shortness of breath and chest pain. His past medical history includes hypertension, type 2 diabetes mellitus and chronic kidney disease stage 3.

On examination, he has a temperature of 36.2ºC. His heart rate is 103 bpm with a blood pressure of 101/67mmHg. Oxygen saturation is 98% on air.

A chest x-ray is taken:

© Image used on license from Radiopaedia

Given the likely diagnosis, what is the next step in the management of this patient?

A.Chest drain

B.Intravenous antibiotics

C.Needle decompression

D.Pleural aspirate

E.Urgent bronchoscopy

Answer:Pleural aspirate

Explanation:

This patient's chest x-ray (CXR) demonstrates a large dense opacification throughout the majority of the left lung with only a small volume of the left lung apex visible. The opacification obstructs the left heart border and diaphragm and there is a visible meniscus between the opacification and the left apex. These findings are in keeping with a pleural effusion. A pleural aspirate is often the first step to determine the origin of a pleural effusion. Several markers are tested including pH, protein levels, glucose and amylase. Samples of pleural fluid are also sent for microscopy, culture and sensitivity and cytology if there is a concern regarding malignancy.

A chest drain may be indicated for a patient with a pleural effusion, particularly if the pleural tap shows evidence of pleural infection (e.g. pH < 7.2 or turbid pleural fluid). However, unless there are increasing oxygen requirements that may warrant immediate drainage of contents, a pleural aspirate is the next most appropriate step in managing a patient with a pleural effusion.

Intravenous antibiotics would be indicated if there were signs of a pleural infection (e.g. raised serum or pleural white cell count, or the presence of fever). However, as there are numerous causes of a pleural effusion, in the absence of fever or signs of an infection, a pleural aspirate would be more appropriate in the first instance.

Needle decompression would be indicated if the diagnosis was a pneumothorax. A pneumothorax appears as an absence of lung markings in the pleural space. This CXR demonstrates a dense opacification in the left lung field which is more likely to represent a pleural effusion.

Urgent bronchoscopy can be used for investigation or management purposes; it can help to biopsy soft tissues for diagnosis (e.g. malignancy) and can facilitate the removal of mucus plugs or secretions that may obstruct the airways causing lung collapse (or atelectasis). However, looking closely at the CXR, there is a visible meniscus at the superior margin of the opacification that is more in keeping with a pleural effusion than lung collapse. Therefore, the most appropriate investigation is a pleural aspirate.

Question:

A 74-year-old woman attends her GP practice due to difficulty bending her left index finger. The patient reports a 3-week history of persistent weakness of their left index finger, most noticeable when they are bending their finger.

On examination, the patient has weakness in the flexion of the thumb and index finger. Past medical history includes type 2 diabetes mellitus, osteoarthritis, and a recent left Colles fracture.

What is the most likely cause?

A.Dupuytren contracture

B.Median nerve injury

C.Radial nerve injury

D.Trigger finger

E.Ulnar nerve injury

Answer:Median nerve injury

Explanation:

Median nerve injury is a common complication of Colles' fracture - may result in weakness or loss of thumb or index finger flexion

Important for meLess important

The scenario describes a 74-year-old woman presenting with left-hand weakness, predominantly affecting the left thumb and index finger. This follows the distribution of the median nerve, therefore the single best answer is a median nerve injury. This is supported by the recent history of a Colles fracture, which can result in a median nerve injury.

Dupuytren contracture is not the single best answer. A Dupuytren contracture typically presents with a firm, prominent palmar tendon, causing the affected digit to be held in flexion. This is not described in the above scenario.

Radial nerve injury is not correct. Presentation of a radial nerve injury affecting the hand would typically affect the extension of the digits. This is not demonstrated in this clinical stem.

Trigger finger is incorrect. Trigger finger (stenosing tenosynovitis) is a condition in which the flexor tendon of a digit is unable to smoothly glide under the sheath, causing the digit to become stuck and 'snap' between flexion and straightening. This is not described in the above scenario, and would not typically cause the thenar eminence wasting described.

Ulnar nerve injury is not correct. An ulnar nerve injury affecting the hand would typically include hypothenar eminence wasting and altered flexion of the 4th and 5th digits.

Question:

A 77-year-old man with a long history of COPD presents to the emergency department in a confused state. He has been found like this by the cleaner that goes to his house weekly.

He looks lethargic, confused and repeatedly complains about a headache. The teams suspect that he is suffering from carbon monoxide poisoning. His oxygen saturation is 79%.

How would you treat his low saturation?

A.BIPAP (bi-level positive airway pressure)

B.2 litres/min via nasal cannula

C.Reservoir mask at 15 litres/min

D.28% Venturi mask at 4 litres/min

E.40% Venturi mask at 10 litres/min

Answer:Reservoir mask at 15 litres/min

Explanation:

Any critically ill patient (including CO2 retainers) should initially be treated with high flow oxygen which is then titrated to achieve target sats. Hypoxia kills

Important for meLess important

The correct answer is reservoir mask at 15 litres/min. The British Thoracic Society guidelines clearly indicate that any critically ill patient (including CO2 retainers) should initially be treated with high flow oxygen because hypoxia can kill the patient very rapidly. Once an acceptable saturation has been reached, you should try and tailor the saturation levels to the patient.

BIPAP (bi-level positive airway pressure) is indicated in COPD with respiratory acidosis pH 7.25-7.35, type II respiratory failure secondary to chest wall deformity, neuromuscular disease, or obstructive sleep apnoea, cardiogenic pulmonary oedema unresponsive to CPAP.

2 litres/min via nasal cannula are indicated for low oxygen supply for patients with slight respiratory distress.

28% Venturi mask at 4 litres/min is used prior to the results of blood gases in patients with risk factors for hypercapnia aiming for oxygen saturation of 88-92%.

40% Venturi mask at 10 litres/min is used when a lower percentage Venturi mask is insufficient to reach the target saturation.

Question:

Caroline is a 33-year-old mother of two, who is unsure if she has completed her family. She presents to you with an 8-month history of amenorrhoea. She had been having normal menstrual cycles for 30 months following the birth of her last child. She has never taken any hormonal contraception or had surgery of any kind. Her abdominal and gynaecological examinations are both normal. There is no clinical sign of hyperandrogenism and you confirm she is not pregnant.

Follicle-stimulating hormone (FSH) ↓

Luteinizing hormone (LH) ↓

Estradiol ↓

Prolactin Normal

Thyroid-stimulating hormone (TSH) Normal

T4 Normal

A 10 day progestin challenge, does not induce a withdrawal bleed.

What is the cause of Caroline's amenorrhoea?

A.Pituitary adenoma

B.Premature ovarian failure

C.Hypothalamic dysfunction

D.Polycystic ovarian syndrome

E.Sheehan's syndrome

Answer:Hypothalamic dysfunction

Explanation:

Secondary amenorrhoea: low-level gonadotrophins indicate a hypothalamic causes

Important for meLess important

Pituitary adenoma can present with macroadenoma effects such as headache and bitemporal hemianopia. Pituitary adenoma also often presents with panhypopituitarism, in this case, other pituitary hormones such as TSH are normal, making this unlikely. Normal prolactin levels rule out a prolactinoma.

Premature ovarian failure can be diagnosed in women less than 40 years of age with menopausal like symptoms and increased levels of FSH measured twice with at least a month between measurements. There are numerous causes, it can be inherited such as in cases of fragile X syndrome or acquired for example from radiation exposure. In premature ovarian failure, the pituitary responds to low levels of oestrogen by increasing the production of gonadotropins in an attempt to stimulate the production of oestradiol in the ovary but fails to do so. Caroline's case does not display these features.

The lab results, in this case, indicate a hypothalamic cause of Caroline's symptoms. There are low levels of the gonadotrophins FSH and LH which are secreted from the pituitary, and low levels of oestradiol which is secreted from the ovary. The gonadotrophin levels should rise in response to low levels of oestradiol, due to hormonal feedback on the hypothalamic-pituitary axis. As this feedback is absent it suggests hypothalamic dysfunction. Causes of hypothalamic amenorrhea can include excessive: exercise, stress or dieting. It is important to ask about these risk factors in your history.

Polycystic ovarian syndrome (PCOS) is unlikely in this case as there is no indication of hyperandrogenism either clinical or biochemically. Symptoms of PCOS such as infertility, obesity and acne are absent. In PCOS, LH and FSH will usually be normal or raised. Anti-Mullerian hormone (AMH) if measured will also be high due to anovulation.

Sheehan's syndrome is caused by pituitary infarction and is incorrect as panhypopituitarism is not shown on the lab results. There is no mention in the history of obstetric haemorrhage, which is the classical cause of Sheehan's syndrome.

Question:

A 62-year-old man with chronic kidney disease secondary to diabetes mellitus is reviewed. When assessing his estimated glomerular filtration rate (eGFR), which one of the following variables is not required by the Modification of Diet in Renal Disease (MDRD) equation?

A.Age

B.Serum creatinine

C.Ethnicity

D.Gender

E.Serum urea

Answer:Serum urea

Explanation:

eGFR variables - CAGE - Creatinine, Age, Gender, Ethnicity

Important for meLess important

Question:

A 76 year old lady visits your surgery with ankle swelling over the last 2 weeks. The swelling is bilateral, with pitting oedema to the mid-shin. She had a change to her medication 2 weeks ago. What medication is most likely to have caused this?

A.Amlodipine

B.Bisoprolol

C.Bendroflumethiazide

D.Clopidogrel

E.Ramipril

Answer:Amlodipine

Explanation:

Bendroflumethiazide does not cause ankle oedema, and it's most likely side-effects are postural hypotension and electrolyte disturbances, especially hypokalaemia.

Beta blockers like bisoprolol are not associated with ankle oedema. They can cause peripheral coldness due to vasoconstriction, hypotension and bronchospasm.

Clopidogrel likewise isn't associated with ankle oedema. It can cause gastrointestinal symptoms or occasionally bleeding disorders.

ACE inhibitors like ramipril are known to cause hypotension, renal dysfunction and a dry cough.They are not known to cause ankle oedema.

Amlodipine is a calcium channel blocker which commonly causes ankle oedema which tends to be only partially responsive to diuretics. They can also cause other side-effects associated with vasodilatation such as flushing and headaches.

References: BNF

Question:

A 74-year-old male is admitted to hospital suffering from a urinary tract infection, for which he is being treated with IV antibiotics. On examination, you notice breathlessness on exertion which he reports is new. His past medical history includes prostate cancer and osteoarthritis only. You note his blood results:

Hb 64 g/l

Platelets 250 \* 109/l

WBC 14 \* 109/l

Upon noting his haemoglobin level, you decide that he requires a transfusion of one unit of red blood cells, which the patient consents to. What is the most appropriate rate of transfusion for the unit of red blood cells in this patient?

A.STAT

B.Over 30 minutes

C.Over 2 hours

D.Over 6 hours

E.Over 12 hours

Answer:Over 2 hours

Explanation:

In a non-urgent scenario, a unit of RBC is usually transfused over 90-120 minutes

Important for meLess important

In a non-urgent scenario (such as the asymptomatic patient in this scenario), a unit of red blood cells (RBC) can safely be transfused over 90-120 minutes. Thus, of the available options in this question, 2 hours would be the most appropriate rate.

In a patient with a history of heart failure, a unit of RBC may be transfused over a longer period (usually 3 hours) to reduce the chances of the patient developing circulatory overload.

In urgent scenarios (e.g. trauma, major haemorrhage) a unit of RBC may be transfused STAT.

Source: https://www.transfusionguidelines.org/transfusion-handbook/4-safe-transfusion-right-blood-right-patient-right-time-and-right-place/4-13-transfusion-of-blood-components

Question:

An 87-year-old female has been brought into the emergency department after suffering a fall at home. She lives alone and over the past 6 months, she has gradually started struggling to mobilise properly and carry out activities of daily living. Her daughter is worried about her getting in and out of the shower by herself.

On arrival she is conscious, but drowsy, with blood around her mouth from a lip laceration. A CT head is ordered and it shows a left-sided crescentic area of hypodensity surrounding the entire convexity with a mild degree of cerebral atrophy.

What is the most likely diagnosis?

A.Acute extradural haematoma

B.Acute on chronic subdural haematoma

C.Acute subdural haematoma

D.Chronic extradural haematoma

E.Chronic subdural haematoma

Answer:Chronic subdural haematoma

Explanation:

On CT imaging, a chronic subdural haematoma will appear as a hypodense (dark), crescentic collection around the convexity of the brain

Important for meLess important

The correct answer is chronic subdural haematoma. The patient has not sustained any visible brain injury from the recent fall.

It is likely that she sustained a head injury several weeks ago, perhaps getting in or out of the shower, but did not notice any neurological deficits, so did not seek medical help. The subdural haematoma therefore remained in place and, as the blood began to age, lost density and became hypodense on CT.

Acute blood on CT is bright, as it is freshly clotted and dense. The exception is if there is active extravasation into the clotted blood, which gives you a 'swirl' sign of dark blood surrounded by bright blood, this is an 'acute on chronic' bleed.

Extradural haematomas show up as biconvex 'lemons'. This is because their spread is limited by the sutures, unlike subdural haematomas. They rarely become chronic because they are arterial in nature and will more often than not, produce symptoms. Most patients lose consciousness at the time of insult and will require surgical intervention to remove the haematoma.

Question:

A seven-year-old has been brought to the GP by his mother due to frequent episodes of shortness of breath and wheeze during physical education lessons at school and when out playing with friends. He also has been coughing and complaining of chest tightness at night. Examination and vital signs are within normal limits. Peak flow is slightly reduced based on height.

You prescribe a short-acting beta 2 agonist to help with symptoms and provide safety netting advice.

What is the most appropriate next step for diagnosis?

A.Fractional exhaled nitrous oxide (FeNO) testing

B.Methacholine bronchial challenge

C.Peak flow readings twice weekly for four weeks

D.Spirometry and bronchodilator reversibility testing

E.Symptoms are sufficient for diagnosis

Answer:Spirometry and bronchodilator reversibility testing

Explanation:

Children aged 5-16 years should have both spirometry and a bronchodilator reversibility (BDR) test to diagnosis asthma

Important for meLess important

This child is presenting with symptoms consistent with asthma (exercise-induced shortness of breath, wheeze, and a nighttime cough). Results of diagnostic testing should be combined with history and clinical judgement.

Spirometry with bronchodilator reversibility testing is the correct answer in this case. Spirometry should be offered to everyone over the age of five years. An obstructive picture with an FEV1/FVC ratio of less than 70% would be suggestive of asthma. A ratio greater than 70% does not rule out asthma, and therefore bronchodilator reversibility testing should be performed alongside. An improvement in FEV1 by >12% following bronchodilator therapy is suggestive of asthma. NICE recommends all adults have bronchodilator reversibility testing, and children aged 5-16 where feasible.

Fractional exhaled nitrous oxide (FeNO) testing is not the most appropriate initial step for the diagnosis of asthma in children. In people aged 17 and over, this may be performed as an initial test. However, in those aged 5-16, FeNO testing can be considered in diagnostic uncertainty where there is either normal spirometry or obstructive spirometry with a negative bronchodilator reversibility (BDR) test. A FeNO level of 35 ppb or higher is considered a positive result in children aged 5-16.

Methacholine bronchial challenge is not used in children. This test may be considered in adults if there remains diagnostic uncertainty following spirometry, bronchodilator reversibility testing, FeNO testing and peak flow variability.

Peak flow readings twice weekly for four weeks would not be the most appropriate test here. In children aged 5 to 16, this can be offered in cases with either normal spirometry or obstructive spirometry with negative bronchodilator reversibility testing, and positive FeNO.

Symptoms sufficient for diagnosis whilst symptoms given in the history form a strong indicator of asthma diagnosis, there should be further objective testing performed. In children aged 5-16 this begins with spirometry and bronchodilator reversibility testing, and if diagnostic uncertainty persists following these can be supplemented by FeNO testing and peak flow variability respectively.

NICE guidelines suggest that asthma can be diagnosed in children aged 5-16 with either obstructive spirometry with positive bronchodilator reversibility or positive FeNO with positive peak flow variability.

Question:

A 65-year-old woman presents with 3 months of weight loss and nausea. Over the past 2-weeks, she has noticed yellowing of her skin and she has an all-over body itch. She describes fatty, difficult-to-flush stools.

Examination reveals a non-tender palpable gallbladder. Observations are normal.

Liver function tests are performed.

Bilirubin 230 µmol/L (3 - 17)

ALP 829 u/L (30 - 100)

ALT 37 u/L (3 - 40)

γGT 33 u/L (8 - 60)

Albumin 28 g/L (35 - 50)

What investigation should be performed to confirm the diagnosis?

A.Abdominal USS

B.ERCP

C.High resolution CT pancreas

D.MRCP

E.PET CT abdomen and pelvis

Answer:High resolution CT pancreas

Explanation:

High-resolution CT scanning is the diagnostic investigation of choice for pancreatic cancer

Important for meLess important

The patient's history (weight loss, jaundice, pruritis and steatorrhea), examination (palpable gallbladder - Courvoisier's sign) and blood tests (obstructive jaundice) are most suggestive of pancreatic cancer. High resolution CT is the diagnostic investigation of choice.

Abdominal USS is indicated for the investigation of obstructive jaundice. However, it is less sensitive for pancreatic cancer than CT and therefore is not the investigation of choice.

ERCP may be indicated later for stent insertion +/- tissue biopsy but is not the diagnostic test for pancreatic cancer.

MRCP may be indicated for further visualisation of the biliary system but is not a first-line investigation for suspected pancreatic cancer.

PET CT is not indicated for the diagnosis of pancreatic cancer.

Question:

A 30-year-old lady presents to the gynaecological outpatient department after she presented to her GP complaining of inability to conceive despite attempting for 2 years.

A trans-vaginal ultrasound scan is performed, and the report is given below:

TV USS A single 5 cm by 7 cm septated cyst is seen on the superior aspect of the right ovary. The left ovary is normal in size and morphology.

What further management would you suggest for this patient?

A.Book for a bilateral salpingo-oophorectomy

B.Commence metformin

C.Perform a serum CA-125, αFP and βHCG, and book for elective cystectomy

D.Perform an ultrasound-guided fine needle aspiration of the cyst for cytology

E.Reassurance and review with repeat ultrasound in 8 weeks / 3 menstrual cycles' time

Answer:Perform a serum CA-125, αFP and βHCG, and book for elective cystectomy

Explanation:

Complex (i.e. multi-loculated) ovarian cysts should be biopsied with high suspicion of ovarian malignancy

Important for meLess important

Complex cysts - defined as cysts containing a solid mass, or those which are multi-loculated - should be treated as malignant until proven otherwise. The Royal College of Obstetricians and Gynaecologists Green-top Guidelines (No. 62) recommend that a serum CA-125, αFP and βHCG are performed for all pre-menopausal women with complex ovarian cysts. Aspiration of cysts is associated with higher rate of recurrence and increased spillage into the peritoneal cavity, which may disseminate possible malignant cells, hence the guideline prefers cystectomy over aspiration.

Option 1 - This would be unwise, as although malignancy should be suspected, performing such a drastic operation in a patient who is still trying for children could be devastating. In reality, this option would be extensively discussed with the patient, who may ultimately agree to the operation. However, it is not the best option here as further investigation is warranted first.

Option 2 - This may be useful for polycystic ovarian syndrome (PCOS) leading to subfertility. However, the classic description of PCOS is not described here clinically, or on ultrasound examination. Even then, metformin is not licensed to treat PCOS-related subfertility.

Option 4 - Although this appears to be a good option, a better option would be to perform serum cancer markers and an elective cystectomy, as per RCOG guidance (see above).

Option 5 - This could be the case if the cyst were simple (thin walled, non-loculated, <5cm in size).

Question:

A 70-year-old man had been referred to clinic with progressive dysphagia and weight loss. His past medical history includes gastro-oesophageal reflux disease (GORD) for the past 5 years. He is a smoker with 10 pack-year history and drinks 20 units of alcohol weekly. An upper GI endoscopy reveals columnar epithelium in the gastro-esophageal junction and biopsy demonstrates high grade dysplasia.

What is the most appropriate management?

A.Endoscopic mucosal resection

B.Routine endoscopic surveillance

C.Prescribe a proton pump inhibitor to manage symptoms of GORD

D.Initiate palliative care

E.Repeat biopsy after 6 months

Answer:Endoscopic mucosal resection

Explanation:

Dysplasia on biopsy in Barrett's oesophagus requires an endoscopic intervention

Important for meLess important

Endoscopic mucosal resection (EMR) is a treatment option for Barrett's esophagus with high-grade dysplasia (HGD). This has a high risk of progression to adenocarcinoma of the oesophagus. An alternative is oesophagectomy. NICE recommend considering endoscopic therapy as an alternative to oesophagectomy in people with high-grade dysplasia and intramucosal cancer, especially in patients who are considered unsuitable for surgery.

Routine surveillance is not appropriate as there is an indication for intervention. If intervention was not planned now for any reason, further surveillance would not change the management.

Symptomatic treatment of GORD with PPI alone would not address the dysplasia, which would need intervention (EMR or oesophagectomy).

While support from palliative care may be needed, solely initiating palliative care would be inappropriate in the first instance as this patient has a potentially curable condition.

Repeating a biopsy after 6 months would not add new information and would delay treatment.

Question:

A 19-year-old woman is on the Specialist Surgical Ward recovering from a tonsillectomy. She returned from theatre 4 hours ago. Nurses report that there appears to be a small amount of bleeding from the wound.

After your initial assessment, what is your next management step?

A.Pack the oral cavity with gauze

B.Repeat observations in 4 hours

C.Arrange immediate return to theatre

D.Continue with discharge planning

E.Prescribe appropriate antibiotics

Answer:Arrange immediate return to theatre

Explanation:

Primary haemorrhage within hours after tonsillectomy requires immediate return to theatre

Important for meLess important

Primary (reactive) haemorrhage occurs within 24 hours after tonsillectomy, and requires immediate return to theatre due to the risk of further, more extensive bleeding which may need surgical intervention.

Secondary haemorrhage >24 hours after tonsillectomy is more likely to be due to infection. As this is a primary haemorrhage, antibiotics are not yet an appropriate management plan.

Repeating observations later or continuing with a discharge are both less appropriate because the ongoing haemorrhage requires immediate management.

Packing the oral cavity with gauze is not a suitable management option.

Question:

A 6-year-old boy is brought to the GP by his mother. Over the last several days, her son appears to be in pain when he walks. She states that this has never happened before and cannot think of what could be causing it.

On examination, he refuses to walk. Vitals are stable, except for a temperature of 38ºC. You examine the legs - there is no obvious inflammation, but the right hip is tender. You attempt to move the right leg, but the child screams in pain. The left leg appears to be normal. Otherwise, he has no past medical history and he takes no medications.

Given the most likely diagnosis, what is the most appropriate management?

A.Advise to attend a local minor injury unit

B.Advise to attend the emergency department

C.Arrange urgent orthopaedic outpatient appointment

D.Prescribe aspirin and safety net

E.Reassure that growing pains are a normal part of development

Answer:Advise to attend the emergency department

Explanation:

If a child with a limp/hip pain has a fever they should be referred for same-day assessment, even if a diagnosis of transient synovitis is suspected

Important for meLess important

Advise to attend the emergency department is the correct answer in this case. This patient is systemically well and is unlikely to be suffering from a more sinister condition. However, due to the presence of a fever, it is prudent to exclude septic arthritis due to its ability to cause long-term complications. Such further investigations could not be performed in the general practice setting.

Advise attending a local minor injury unit. The presence of a fever in this child, along with difficulty weight-bearing, raises suspicion of septic arthritis. Therefore, it is not appropriate to send him to a minor injury unit. The staff will most likely transfer him to an emergency department, therefore, this results in an unnecessary delay.

Arrange urgent orthopaedic outpatient appointment. Although they would be able to provide greater expertise, it is not appropriate in the setting of an acutely painful joint. This child needs to be seen as soon as possible, therefore the emergency department would be most appropriate.

Prescribe aspirin and safety net is an incorrect answer. Aspirin should never be prescribed in a child due to the risk of causing Reye's syndrome, with exception of Kawasaki disease. It would be unwise to exclude septic arthritis in this patient without further supporting evidence, such as blood studies or direct imaging of the joint.

Growing pains is an incorrect answer. Growing pains are typically bilateral and most often occur at night. Even if occurring during the daytime, they are unlikely to interfere with daily activities. They are also associated with a normal physical examination.

Question:

You are a doctor working in a genitourinary medicine clinic. You have just received some test results about a patient who attended for a full sexual health screen. The patient is a 27-year-old woman, and she has no symptoms. Her test results are shown below.

Serum Treponema pallidum haemagglutination (TPHA; treponemal test) Positive

Rapid plasma reagin (RPR; non-treponemal test) Negative

How should these test results be interpreted?

A.False positive syphilis result

B.Latent syphilis infection

C.Primary syphilis infection

D.Secondary syphilis infection

E.Successfully treated syphilis infection

Answer:Successfully treated syphilis infection

Explanation:

Negative non-treponemal test + positive treponemal test is consistent with successfully treated syphilis

Important for meLess important

Successfully treated syphilis infection is the correct answer. The treponemal test (TPHA) remains positive life-long following syphilis infection, whereas the non-treponemal test (RPR) determines current disease activity. The positive treponemal test indicates this patient has or has had syphilis in the past. The non-treponemal test is negative, suggesting the patient does not currently have syphilis. Overall, this indicates successful treatment of a previous syphilis infection.

False positive syphilis result is incorrect. Certain things other than syphilis can cause a raised non-treponemal test, including pregnancy, HIV, SLE, TB and malaria. However, this patient has a negative non-treponemal test. If this were a false positive syphilis result, we would expect a negative treponemal test (as this is a marker of past or present syphilis infection) and a falsely raised non-treponemal test.

Latent syphilis infection is incorrect. We would expect a positive treponemal test (indicative of past or present syphilis infection) and a positive non-treponemal test (a measure of current disease activity). As this patient has a negative non-treponemal test, they do not have a current syphilis infection. Their positive treponemal test indicates previous infection, and therefore successful treatment.

Primary syphilis infection is incorrect. We would expect a positive treponemal test (indicative of past or present syphilis infection) and a positive non-treponemal test (a measure of current disease activity). As this patient has a negative non-treponemal test, they do not have a current syphilis infection. Their positive treponemal test indicates previous infection, and therefore successful treatment.

Secondary syphilis infection is incorrect. We would expect a positive treponemal test (indicative of past or present syphilis infection) and a positive non-treponemal test (a measure of current disease activity). As this patient has a negative non-treponemal test, they do not have a current syphilis infection. Their positive treponemal test indicates previous infection, and therefore successful treatment.

Question:

The daughter of one of your elderly patients attends an appointment because she is worried about her mother. She has noticed that her mother struggles to concentrate on tasks, has developed issues with her short-term memory, and has been getting intermittently confused. Her symptoms can fluctuate throughout the day. She is worried her mother could be developing dementia. Additionally, she reports her mother has been commenting that she is seeing small rabbits hopping around her room, which are not present.

What type of dementia does this patient most likely have?

A.Alzheimer's disease

B.Creutzfeldt–Jakob disease

C.Frontotemporal dementia

D.Lewy body dementia

E.Vascular dementia

Answer:Lewy body dementia

Explanation:

Visual hallucinations with dementia = Lewy body dementia

Important for meLess important

Lewy body dementia is the correct answer because the patient is reporting seeing things that are not there (visual hallucinations). This is a common early symptom for people with Lewy body dementia. The person might describe seeing people or animals.

Creutzfeldt–Jakob disease is incorrect as this is a very rare condition and usually presents with mobility and speech problems. Therefore this is not the most likely option.

Alzheimer's disease is not the correct answer because visual hallucinations are not a common presentation in this condition. Usually, the first signs of Alzheimer’s are memory problems; struggling to recall recent events or information.

Frontotemporal dementia (FTD) is not the correct answer because visual hallucinations are not a common symptom in this type of dementia. People with FTD often present with changes in their personality, behaviour, language and speech.

Vascular dementia is not the correct answer because visual hallucinations are not common in this condition. However other visual changes could occur if they developed symptoms of dementia after having a stroke.

Question:

Dave is a 30-year-old married man with two children. He presents to you distressed and feeling suicidal. He states he has thought about taking an overdose. He has no previous suicide or self-harm attempts, and no psychiatric history. He has a caring family and enjoys his job. Which of the following is a risk factor for suicide?

A.First presentation to mental health services

B.Male gender

C.Age 20-30 years

D.Female gender

E.Being married

Answer:Male gender

Explanation:

The only correct option from the above list is 'male gender'.

The following is a list of suicide risk factors taken from the Preventing suicide in

England paper from the Government:

Gender - males are three times as likely to take their own life as females

Age - people aged 35-49 years now have the highest suicide rate

Mental illness

The treatment and care they receive after making a suicide attempt

Physically disabling or painful illnesses including chronic pain

Alcohol and drug misuse

The loss of a job

Debt

Living alone - becoming socially excluded or isolated;

Bereavement

Family breakdown and conflict including divorce and family mental health problems

Imprisonment

References:

Preventing suicide in England - A cross-government outcomes strategy to save lives. HM Government https://www.gov.uk/government/uploads/system/uploads/attachmentdata/file/216928/Preventing-Suicide-in-England-A-cross-government-outcomes-strategy-to-save-lives.pdf

Assessing risk of suicide or self-harm in adults - BMJ - http://www.bmj.com/content/347/bmj.f4572?variant=full-text.pdf%2Bhtml&sso=

Question:

A 5-year-old boy has just started primary school in the UK. His mother is informed that he can undergo school entry health screening, which will include a test of his hearing. He underwent the full newborn screening program and is up to date on his vaccinations. His mother has no concerns about his health and consents to him participating in the school entry health screening program.

What method of testing the child's hearing will be used as part of the screening program?

A.Auditory brainstem response test

B.Distraction test

C.Otoacoustic emission test

D.Pure tone audiometry

E.Recognition of familiar objects

Answer:Pure tone audiometry

Explanation:

Pure tone audiometry is done at school entry in most areas of the UK

Important for meLess important

Pure tone audiometry is the correct answer. This test can be used in children over the age of 3 and in adults. It involves playing sounds at different frequencies and volumes and the patient indicating when they can no longer hear the sound. This allows us to determine whether hearing loss is present, which frequencies are affected, and the severity.

Auditory brainstem response test is incorrect. This is a test performed on newborns and infants if their otoacoustic emission test is abnormal. The test involves placing earphones in the child's ears that play different sounds and monitoring the response of the hearing pathway to these sounds using electrodes.

Distraction test is incorrect. This can be performed in children aged 6-9 months. It involves playing sounds out of the child's field of view and assesses the ability of the child to hear the sound and locate it.

Otoacoustic emission test is incorrect. This is used in the newborn hearing screening program. It involves playing a sound into the ear through a probe. The sound should stimulate hair cells in the cochlea causing an echo which is detected by a microphone. This can determine whether the cochlea is healthy or damaged.

Recognition of familiar objects is incorrect. This can be used in children aged 18 months to 2.5 years. It involves asking the child to point to familiar objects.

Question:

A 40-year-old man visits his doctor with an ulcer on his bottom lip. He has improved his dental hygiene since being treated for previous mouth ulcers and gingivitis years ago. He denies dysphagia or unexplained weight loss. The ulcer has been present for the last 2 months. He has no medical history and smokes 30 cigarettes daily.

His temperature is 37.1ºC, his heart rate is 86 bpm, and his blood pressure is 134/75 mmHg. On his bottom lip, there is a well-defined, 4 mm, non-tender ulcer with no signs of bleeding. No cervical lymphadenopathy is present.

What is the most appropriate next step in his management?

A.Arrange blood tests for vitamin deficiencies

B.Prescribe chlorhexidine mouthwash

C.Prescribe topical hydrocortisone

D.Refer routinely to secondary care

E.Refer urgently to secondary care

Answer:Refer urgently to secondary care

Explanation:

Persistent mouth ulcer → ?squamous cell carcinoma

Important for meLess important

This patient presented with a 2-month history of a non-tender mouth ulcer, which is unusual as most mouth ulcers heal within 10–14 days. The patient's smoking history, along with the duration and persistent nature of this mouth ulcer, should raise suspicion of oral cancer, particularly squamous cell carcinoma. NICE recommends that unexplained and persistent (>3 weeks) oral ulcers warrant a referral to secondary care due to the likelihood of malignancy.

Refer urgently to secondary care is correct as since this patient has features of potential mouth cancer, they should be referred via the suspected cancer (2-week wait) pathway to secondary care for further investigation and treatment.

Refer routinely to secondary care is incorrect. Although this patient should be referred to secondary care, a routine referral would delay investigations and treatment, allowing potential cancer to develop further.

Arrange blood tests for vitamin deficiencies is incorrect. Although vitamin deficiencies, particularly vitamin C, can lead to mouth ulceration, patients typically have a history of poor dietary vitamin C intake and other associated features such as bruising and easy bleeding, which do not apply to this patient. Patients are more likely to have multiple ulcers rather than a single, persistent ulcer.

Prescribe chlorhexidine mouthwash is incorrect. This would be an appropriate initial treatment for cases of simple mouth ulcers, however, since this ulcer has been persistent (>3 weeks), it is unlikely that this is a typical mouth ulcer and should raise suspicion of malignancy, warranting a referral to secondary care.

Prescribe topical hydrocortisone is incorrect. Similarly to the above, if initial measures such as chlorhexidine mouthwashes fail, topical hydrocortisone may be tried in simple mouth ulcers, but given the unusual nature of this ulcer and its timeframe, he should be referred to secondary care via a suspected cancer pathway.

Question:

A 67-year-old man presents to his GP with numbness in his feet and recurrent falls over the past month. He describes difficulty walking. His GP recently started him on folate for a macrocytic anaemia. He takes no other regular medications. He does not drink alcohol. On examination, he has an ataxic gait and Romberg’s test is positive. Examination of his lower limbs demonstrates an increase in tone and bilateral weakness. He has absent ankle and knee jerks with upgoing plantars. Light touch and vibration sense is reduced bilaterally.

What is the most likely cause of his symptoms?

A.Amyotrophic lateral sclerosis

B.Guillain-Barre syndrome

C.Subacute combined degeneration of the cord

D.Myasthenia gravis

E.Charcot-Marie-Tooth disease

Answer:Subacute combined degeneration of the cord

Explanation:

Always replace vitamin B12 before folate - giving folate to a patient deficient in B12 can precipitate subacute combined degeneration of the cord

Important for meLess important

Subacute combined degeneration of the cord involves degeneration of the posterior and lateral columns of the spinal cord, often due to vitamin B12 deficiency.

Damage to the posterior columns - loss of proprioception, light touch and vibration sense (sensory ataxia and a positive Romberg's test).

Damage to lateral columns - spastic weakness and upgoing plantars (UMN signs).

Damage to peripheral nerves - absent ankle and knee jerks (LMN signs).

When there is a mix of UMN and LMN signs in a patient, always consider SCDC.

Replacing folate without vitamin B12 (hinted at in this case) can precipitate subacute combined degeneration of the cord in a patient who is vitamin B12 deficient. Always ensure vitamin B12 levels are checked (and replenished) before giving folate for a macrocytic anaemia.

Amyotrophic lateral sclerosis is a subtype of motor neurone disease. This may present with mixed UMN and LMN signs but no associated sensory deficits.

Guillain-Barre syndrome is an inflammatory peripheral neuropathy so will not present with UMN signs. There is nothing in the history to suggest a recent bacterial or viral infection.

Myasthenia gravis is an autoimmune disease affecting the neuromuscular junction so will not present with UMN signs or sensory loss.

Charcot-Marie-Tooth disease is a hereditary sensory and motor peripheral neuropathy. UMN signs are not present in these patients. However, patients can present with LMN signs in all limbs and reduced sensation (more pronounced distally).

Question:

A 27-year-old female presents to her General Practitioner with severe morning headaches associated with nausea. She is referred for an MRI head scan that reveals a large tumour arising from the falx cerebri and pushing on the brain. There is a well-defined border between the tumour and the brain parenchyma.

What is the most likely diagnosis?

A.Glioblastoma

B.Metastasis

C.Low-grade glioma

D.Meningioma

E.Craniopharyngioma

Answer:Meningioma

Explanation:

Meningiomas are typically benign tumours that arise from the arachnoid cap cells of the meninges but are typically located next to the dura

Important for meLess important

Meningiomas are typically benign tumours that arise from the arachnoid cells next to the dura mater of the meninges. They are extra-axial lesions, meaning they do not arise from the brain parenchyma. They do not invade the brain substance, but rather cause symptoms by compression.

Question:

A 54-year-old male who is waiting to be assessed in the emergency department clutches the left-side of his chest and reports to be experiencing crushing chest pain. He looks grey, clammy, and unwell. He vomits as he is wheeled into resus. His observations show he is apyrexial with a heart rate of 89/min, and blood pressure of 89/71mmHg. A troponin blood test is sent. He is given sublingual glyceryl trinitrate (GTN) spray, which has little effect.

Which of the following is a poor prognostic indicator for this patient?

A.Heart rate of 89 beats per minute

B.Initial troponin level >400ng/mL

C.No relief with GTN spray

D.Systolic blood pressure of 89mmHg

E.Vomiting at presentation

Answer:Systolic blood pressure of 89mmHg

Explanation:

Cardiogenic shock is a poor prognostic indicator in acute coronary syndrome

Important for meLess important

A systolic blood pressure of 89 mmHg is in keeping with a diagnosis of cardiogenic shock and is a poor prognostic indicator. It is seen in ~10% of patients presenting with acute coronary syndrome (such as this man) and is associated with a high mortality rate (~50%).

A heart rate of 89 beats per minute is incorrect as this is currently within normal limits. As the patient's cardiogenic shock worsens, his heart rate will increase.

An initial troponin level of >400ng/mL is incorrect. While troponin levels are useful in diagnosing STEMI and NSTEMI, the magnitude by which it is raised does not change the prognosis.

No relief with GTN spray is incorrect as this has very little correlation with prognosis. Please note if GTN failed to control the patient's pain, a strong opioid should also be used (such as IV diamorphine).

Vomiting at presentation is incorrect because it is common for patients to feel nauseated whilst suffering an acute coronary syndrome, the presence of vomiting also has very little correlation with prognosis.

Question:

A 15-year-old girl presents to her GP with a 2-month history of bilateral knee pain, felt worst in the mornings. She has also been experiencing general fatigue but has had no fevers, weight loss, or rashes.

Her family history is notable only for her mother who has systemic lupus erythematosus (SLE).

On examination, her vital signs are normal. There is mild knee and ankle oedema bilaterally and tenderness on passive movement of the knee joints.

What is the most likely diagnosis?

A.Ewing sarcoma

B.Oligoarticular juvenile idiopathic arthritis

C.Osgood-Schlatter disease

D.Systemic lupus erythematosus (SLE)

E.Systemic-onset juvenile idiopathic arthritis

Answer:Oligoarticular juvenile idiopathic arthritis

Explanation:

Pauciarticular JIA is the most common presentation type and is typically mild

Important for meLess important

Oligoarticular (or pauciarticular) juvenile idiopathic arthritis (JIA) is the most common presentation of JIA and is defined as affecting up to four joints. Typically this involves larger joints such as the knee, ankle or elbows. Common symptoms include pain or stiffness in the affected joints and fatigue. Associated symptoms may include rash, fever, dry or gritty eyes. Family history for autoimmune disease (systemic lupus erythematosus in this case) is a risk factor for JIA.

Ewing sarcoma is a primary cancer of bone typically affecting long bones and presenting with localised pain and swelling. This would normally be unilateral, and highly unlikely to present symmetrically.

Osgood-Schlatter disease is an inflammation of the growth plate (apophysitis) at the tibial tubercle secondary to traction from the quadriceps. It typically occurs in the rapidly-growing adolescent who is involved in sports/athletics. It can involve both tibia, although the presentation is typically unilateral. Worse on exercise and not associated with knee effusions.

Systemic lupus erythematosus (SLE) is a chronic multi-system disorder that commonly includes arthritis or arthralgia. The absence of other systemic symptoms or rash suggests a primary arthritis in this case, despite the family history.

Systemic-onset juvenile idiopathic arthritis is a subset of JIA that requires the onset of joint symptoms accompanied by regular and intermittent fevers for diagnosis.

Question:

A 24-year-old man presents to his general practitioner with generalized fatigue and polyuria. It started 2 months ago and it seems to be worsening. He has a past medical history of hypertension and he is morbidly obese. The fasting glucose sample shows 8.2 mmol/L. The doctor decides to measure his C-peptide levels, which are low.

Which one of the following diagnoses is the most appropriate?

A.Impaired fasting glucose

B.Maturity-onset diabetes of the young

C.Suggests diabetes mellitus but further testing is needed

D.Type 1 diabetes mellitus

E.Type 2 diabetes mellitus

Answer:Type 1 diabetes mellitus

Explanation:

C-peptide levels are typically low in patients with T1DM

Important for meLess important

The correct answer is type 1 diabetes mellitus. This patient presents to his doctor with polyuria and tiredness, two landmark symptoms of diabetes. His fasting glucose sample shows 8.2 mmol/L. Following the world health organisation, symptomatic patients with fasting glucose greater than or equal to 7.0 mmol/L should be diagnosed with diabetes. Given his intermediate age for diabetes type 1 and 2 and the fact he has a risk factor for type 2 diabetes (obesity), NICE guidelines suggest testing of C-peptide. This peptide is the result of the cleavage of proinsulin into insulin. Very low levels indicate the absolute absence of insulin, indicating type 1 diabetes mellitus.

Impaired fasting glucose is incorrect, as the diagnosis is done with fasting glucose greater than or equal to 6.1 but less than 7.0 mmol/L, whilst this patient result indicates fasting glucose of 8.2 mmol/L.

Maturity-onset diabetes of the young is an autosomal-dominant disease, and it is characterised by the development of type 2 diabetes mellitus in patients younger than 25 years old. In this condition, C-peptide remains in the normal range and beta-cell antibodies are negative.

Suggests diabetes mellitus but further testing is needed is an incorrect answer, as the world health organisation guidelines suggest that if a patient is symptomatic with fasting glucose greater than or equal to 7.0 mmol/L there are the grounds to complete a diagnosis of diabetes.

Type 2 diabetes mellitus is incorrect, as in this condition the C-peptide levels will be normal or high, given that insulin is still being produced.

Question:

Which one of the following statements regarding heparin is correct?

Low molecular weight heparin = LMWH

A.Heparin-induced thrombocytopaenia is more common with LMWH than with unfractionated, standard heparin

B.LMWH is given intravenously

C.Vitamin K should be used if an overdose is given accidently

D.Intravenous heparin is monitored using anti-Factor Xa levels

E.LMWH has a longer duration of action than unfractionated, standard heparin

Answer:LMWH has a longer duration of action than unfractionated, standard heparin

Explanation:

Question:

A woman is in labour with her second child. The midwife becomes concerned that the cardiotocograph is showing late decelerations. She is reviewed by the obstetrician on-call who states that there is fetal compromise, but no immediate risk to life. A category two caesarean section is planned.

In what time frame should the delivery be performed?

A.Within 20 minutes

B.Within 30 minutes

C.Within 45 minutes

D.Within 75 minutes

E.Within 90 minutes

Answer:Within 75 minutes

Explanation:

Category 2 caesarean sections should occur within 75 minutes of making the decision

Important for meLess important

The urgency of caesarean sections is described using categories. Category 1 caesarean section is when there is an immediate threat to the life of the woman or fetus. The procedure should be performed within 30 minutes. A category 2 caesarean section is when there is maternal or fetal compromise which is not immediately life-threatening. Delivery should be planned as soon as possible, and within 60-75 minutes.

In this case, there is fetal compromise which is not immediately life-threatening and this should be managed with a category 2 caesarean section. Delivery should be planned as soon as possible, and within 60-75 minutes. Therefore, Within 75 minutes is the correct answer..

Within 20 minutes is incorrect. Whilst the procedure should be performed as soon as possible, the target time is longer than this.

Within 30 minutes is incorrect. A category 1 section should be performed within 30 minutes.

Within 45 minutes is incorrect. Whilst the procedure should be performed as soon as possible, the target time is longer than this.

Within 90 minutesis incorrect. The procedure should be performed sooner than this.

Question:

A 76-year-old retiree undergoes right lower limb angioplasty and is admitted for bed rest with discharge in the morning. Her medical history includes peripheral arterial disease, hypertension, and atrial fibrillation (rate controlled).

Overnight, she is found to be bradycardic at 42/min. Her pre-operative baseline was 74/min. She is asymptomatic apart from some new epigastric discomfort. An ECG demonstrates ST elevation in II, III & aVF, ST depression in aVL, and second-degree (Mobitz type I) block. Apart from bradycardia, she is haemodynamically stable.

What is the best explanation for her bradycardia?

A.Accidental double-dose on beta-blocker resulting in iatrogenic bradycardia

B.Occlusion of the LAD coronary artery has led to dysfunction of the bundle of His

C.Occlusion of the LAD coronary artery has led to increased vagal tone and resulting bradycardia

D.Occlusion of the right coronary artery has led to ischaemia of the AV node

E.This is a normal variant found during sleep. If tested during the day, these changes would be unlikely to be present

Answer:Occlusion of the right coronary artery has led to ischaemia of the AV node

Explanation:

AV block can occur following an inferior MI

Important for meLess important

Occlusion of the right coronary artery has led to ischaemia of the AV node is correct. This patient has several risk factors for cardiovascular disease, notably peripheral artery disease (requiring intervention), hypertension, atrial fibrillation, and age. She has had a significant drop in heart rate from her baseline associated with epigastric discomfort, which raises concern for cardiac dysfunction of some form, and therefore an ECG should be performed. She has had an inferior STEMI, indicated by ST elevations in leads II, III, and aVF, and ST depression in lead aVL, which typically affects the right coronary artery in 80% of cases.

Accidental double-dose on beta blocker resulting in iatrogenic bradycardia is incorrect. An iatrogenic beta blocker overdose would not produce these ECG findings, which are suggestive of acute coronary syndrome.

Occlusion of the LAD coronary artery has led to dysfunction of the bundle of His is incorrect. Her ECG changes suggest occlusion of the right coronary artery rather than the left anterior descending artery. Her bradycardia is due to her second-degree heart block, as the ischaemic territory includes the AV node. Most commonly in an inferior MI, the second-degree block is Mobitz type I (progressive prolongation of the PR interval until a dropped beat occurs), where malfunctioning cells in the node become fatigued. This can be reversible, but AV block following MI typically confers a worse prognosis.

Occlusion of the LAD coronary artery has led to increased vagal tone and resulting bradycardia is incorrect. Overactivity of the vagus nerve can lead to bradycardia, which is related to parasympathetic stimulation of the heart. However, this patient’s bradycardia is due to ischaemia of the AV node from her inferior STEMI, not from an increased vagal tone. The ECG pattern is also more suggestive of a right coronary artery territory infarction.

This is a normal variant found during sleep. If tested during the day, these changes would be unlikely to be present is incorrect. A normal ECG would not have these findings, which are suggestive of acute coronary syndrome and require immediate action.

Question:

A 52-year-old male with a known pituitary macroadenoma presents with a severe headache and reduced visual acuity. He also complains of neck stiffness and has vomited twice. The patient has a blood pressure of 96/48 mmHg and a heart rate of 125 bpm. On examination, there is no obvious limb weakness, but you note bitemporal hemianopia. A CT head shows areas of hyperdensity within the sellar region.

What is the most appropriate immediate next step?

A.CT head with contrast

B.Formal visual field testing

C.IV hydrocortisone

D.MRI pituitary

E.Refer to neurosurgery for pituitary adenoma resection

Answer:IV hydrocortisone

Explanation:

Pituitary apoplexy - urgent steroids priority

Important for meLess important

This patient is presenting with symptoms of pituitary apoplexy. This is a rare and life-threatening complication of a pituitary adenoma and is defined as bleeding/infarction within the pituitary macroadenoma. IV hydrocortisone is the correct answer here and can be life-saving as patients are often deficient in adrenocorticotropic hormone (ACTH) and hence cortisol.

Visual field testing may be appropriate but would not be done immediately.

Computerised tomography (CT) head with contrast is unlikely to change management as a plain CT finding of hyperdensity in the sellar region suggests apoplexy.

Magnetic resonance imaging (MRI) is less effective than CT in the early stages of pituitary apoplexy. In addition, MRI would delay the urgent need to manage the hypopituitarism and so is not the most appropriate next step.

Pituitary adenoma resection is the definitive treatment for this case, but hypopituitarism must be addressed urgently.

Question:

A 39-year-old male presents to his GP with worsening fatigue over the past 2 months. He describes having low energy and reduced exercise tolerance, now getting out of breath on climbing his stairs. On further questioning he also mentions he has been experiencing headaches over the past couple of weeks.

He describes no shortness of breath at rest, no cough, no change in weight and no change in bowel habit, although his stools ‘have been a bit darker recently’.

He has a history of Crohn's disease, which is managed with azathioprine and methotrexate, although he has had several flares over the past year requiring steroids. He has no other medical history.

The GP takes a baseline set of bloods:

Hb 77 g/L Male: (135-180)

Platelets 201 \* 109/L (150 - 400)

WCC 7.2 \* 109/L (4.0 - 11.0)

MCV 89 fL (80-100 fL)

RDW 21% (11.5-14.5%)

Hb = Haemoglobin, WCC = White Cell Count, MCV = Mean Corpuscular Volume, RDW = Red blood cell Distribution Width

Serum Iron Low

Ferritin Low

TIBC High

TIBC = Total Iron Binding Capacity

CRP 2.2 mg/L (<5mg/L)

What is the most likely cause of this patients symptoms?

A.Anaemia of chronic disease

B.Hashimoto's thyroiditis

C.Mixed anaemia

D.Iron deficiency anaemia

E.Vitamin B12 deficiency anaemia

Answer:Mixed anaemia

Explanation:

Co-presentation of iron deficiency anaemia and B12 deficiency anaemia may lead to a normocytic anaemia - differentiated from anaemia of chronic disease due to low/normal ferritin and wide distribution of red blood cell volume

Important for meLess important

Crohn's disease classically causes B12 deficiency anaemia due to terminal ileal disease impairing vitamin B12 absorption. However, if there is also chronic blood loss (as suggested by the patients recent severe disease and multiple long courses of steroids), this may lead to a co-presenting iron deficiency anaemia.

This is difficult to differentiate from AOCD, but the increased red cell distribution width shows the existence of both macrocytic and microcytic red blood cells, which average out to give a normocytic MCV, despite the presence of micro and macrocytosis. The normal CRP also makes AOCD less likely.

In this instance both iron deficiency anaemia and vitamin B12 deficiency anaemia are present, but neither account for all of the blood test findings.

Question:

Which one of the following types of Hodgkin's lymphoma carries the worst prognosis?

A.Nodular sclerosing

B.Mixed cellularity

C.Lymphocyte predominant

D.Lymphocyte depleted

E.Hairy cell

Answer:Lymphocyte depleted

Explanation:

Question:

A 25-year-old woman who is 20 weeks pregnant presents after routine antenatal clinic review. She was advised to present to the GP clinic for vaccination but cannot remember which ones she was recommended. She has had all of her childhood and school vaccines but has had no immunisations since she has been pregnant.

Which vaccine(s) should be offered to this patient?

A.Influenza and hepatitis B vaccine

B.Influenza vaccine

C.Pertussis and hepatitis B vaccine

D.Pertussis and influenza vaccine

E.Pertussis vaccine

Answer:Pertussis and influenza vaccine

Explanation:

Women who are between 16-32 weeks pregnant are offered the pertussis vaccine

Important for meLess important

This patient should be offered an influenza vaccine (at any point of her pregnancy) and a pertussis vaccine (typically part of diphtheria, pertussis, and tetanus vaccination) between 16-32 weeks of pregnancy. This is designed to provide maternal antibodies to the foetus when it is delivered and to prevent the spreading of pertussis which can cause severe illness and death in a newborn.

A hepatitis B booster is not required with an influenza vaccination as a routine vaccination during pregnancy.

Influenza vaccination is correct, but this patient should also be offered a pertussis vaccine.

A hepatitis B booster is not required with the pertussis vaccination as a routine vaccination during pregnancy.

Pertussis vaccination is correct, but this patient should also be offered an influenza vaccination.

Question:

A 32-year-old woman presents with a long history of chronic ear infections. She complains of an offensive discharge from her right ear with associated hearing loss for months. She has had severe vertigo for the last 48 hours.

What is the most likely diagnosis?

A.Cholesteatoma

B.Squamous cell carcinoma

C.Labyrinthitis

D.Acute otitis externa

E.Acute otitis media

Answer:Cholesteatoma

Explanation:

The past medical history of chronic ear infections and offensive discharge are suggestive of cholesteatoma. A large cholesteatoma can invade the inner ear resulting in sensorineural hearing loss and vertigo, as seen in this case.

Question:

You are meeting with a 51-year-old man at his first diabetes review. After 3 months of metformin therapy your patients HbA1c has improved. He hasn't managed to make any lifestyle changes unfortunately. You are satisfied that his type 2 diabetes mellitus is being managed well. However, your patient complains that the metformin has resulted in significant gastrointestinal (GI) side effects.

How should you manage this patient?

A.Keep him on metformin

B.Stop all antidiabetic medications

C.Switch to a modified-release formulation of metformin

D.Switch to a sulphonylurea

E.Switch to a GLP-1 receptor antagonist

Answer:Switch to a modified-release formulation of metformin

Explanation:

If metformin is not tolerated due to GI side-effects, try a modified-release formulation before switching to a second-line agent

Important for meLess important

Switching to a modified-release formulation of metformin is the most appropriate answer. Modified-release formulations typically result in fewer GI side-effects than other formulations. As metformin is working for this patient it would be appropriate to keep him on it rather than trying another medication that might not work as effectively.

Keeping the patient on the same formulation of metformin is not the best solution. He is having significant GI side-effects and is unlikely to tolerate these for much longer. Modified-release formulations should be able to control his diabetes while limiting these side effects.

Stopping all antidiabetic medications is not the best option. This patient has failed to make any lifestyle changes so is unlikely to be able to control his diabetes without medical support.

While switching to a second-line agent like a sulphonlyurea may be effective at managing his diabetes and reducing GI side-effects there is a risk that these will not effectively control his condition and introduce troublesome side-effects of their own. These are better saved for when, or if, he requires combination therapy.

GLP-1 receptor antagonists are effective antidiabetic medications, however they are expensive and inconvenient. These medications are delivered by injection which is not preferable for the patient, so other medications should be tried before these are indicated.

Question:

A 67-year-old man presents to the emergency department with dizziness and palpitations. The symptoms started 15 minutes ago and did not seem to subside.

On examination, his blood pressure is 110/82 mmHg, heart rate 150/min, and respiratory rate 22/min. His pulse is irregularly irregular. He does not have any past medical history and is a keen athlete.

An ECG shows an irregular trace with a QRS complex of 130 ms.

What is the most likely cause of his presentation?

A.Atrial fibrillation

B.Atrial fibrillation with bundle branch block

C.Brugada syndrome

D.Hypertrophic obstructive cardiomyopathy

E.Ventricular tachycardia

Answer:Atrial fibrillation with bundle branch block

Explanation:

Atrial fibrillation with bundle branch block is the most likely cause of an irregular broad complex tachycardia in a stable patient

Important for meLess important

The correct answer is atrial fibrillation with bundle branch block. This patient is presenting with dizziness and palpitations. The ECG shows an irregular trace with a QRS complex of 130 ms, accompanied by a heart rate of 150/min. These are defining features of an irregular broad complex tachycardia.

This patient is stable, meaning that his blood pressure is normal, he is not losing consciousness and does not have accompanying heart failure or myocardial ischemia. The most common cause of irregular broad complex tachycardia in a stable patient is hence atrial fibrillation with bundle branch block.

Atrial fibrillation would present with dizziness and palpitations as in this case, but it would cause tachycardia accompanied by a loss of P waves on ECG and small QRS complexes (usually < 120ms), rather than a broad complex tachycardia.

Brugada syndrome is an inherited cardiovascular disease which usually presents with sudden cardiac death. The ECG would show convex ST-segment elevation greater than 2mm in V1-V3 followed by a negative T wave and a partial right bundle branch block. Additionally, this syndrome would not explain tachycardia.

Hypertrophic obstructive cardiomyopathy is another cause of sudden cardiac death in previously healthy people. On an ECG it would cause left ventricular hypertrophy, non-specific ST-segment and T-wave abnormalities, progressive T wave inversion and deep Q waves, none seen in this ECG. Additionally, it would not explain tachycardia.

Ventricular tachycardia is broad-complex tachycardia originating from a ventricular ectopic focus. It can because by a long QT-segment or by myocardial infarction. It is a regular broad-complex tachycardia, as opposed to the irregular one seen in this case.

Question:

A 50-year-old woman is investigated for weight loss and anaemia. She has no past medical history of note. Clinical examination reveals massive splenomegaly associated with pale conjunctivae. A full blood count is reported as follows:

Hb 10.9 g/dl

Platelets 702 \* 109/l

WCC 56.6 \* 109/l

Film Leucocytosis noted. All stages of granulocyte maturation seen

What is the most likely diagnosis?

A.Chronic lymphocytic leukaemia

B.Myelodysplasia

C.Myeloma

D.Acute myeloid leukaemia

E.Chronic myeloid leukaemia

Answer:Chronic myeloid leukaemia

Explanation:

The causes of massive splenomegaly are as follows:

myelofibrosis

chronic myeloid leukaemia

visceral leishmaniasis (kala-azar)

malaria

Gaucher's syndrome

This narrows the diagnostic possibilities considerably leaving chronic myeloid leukaemia as the most likely diagnosis.

Question:

A 58-year-old Asian man attends for his annual diabetic review. At this appointment his blood pressure is found to be 158/94 mmHg.

Over the next week, he undergoes ambulatory blood pressure monitoring. The average of these readings is found to be 152/95 mmHg.

What is the first-line management for this patient?

A.Amlodipine

B.Doxazosin

C.Indapamide

D.Lifestyle advice only

E.Ramipril

Answer:Ramipril

Explanation:

Hypertension in diabetics - ACE inhibitors/A2RBs are first-line regardless of age

Important for meLess important

This patient has stage 2 hypertension as his blood pressure is above 150/95 mmHg. Treatment of hypertension is indicated for all patients with stage 2 or 3 hypertension, or stage 1 hypertension if they are under 80 years with one of the following: end-organ damage, cardiovascular disease, renal disease, diabetes mellitus, 10-year cardiovascular risk ≥10%.

In patients with diabetes, ACE inhibitors or angiotensin II receptor blockers are the first-line option, regardless of the age or ethnicity of the patient. Examples of ACE inhibitors include ramipril and lisinopril, and examples of angiotensin II receptor blockers include losartan and candesartan. Out of these answers, ramipril is correct.

Amlodipine is an example of a calcium channel blocker (CCB). This class of drug is first-line for patients with hypertension who are over 55 or black African or African-Caribbean origin. However even with these criteria, if a patient has diabetes then ACE inhibitors or angiotensin II receptor blockers are the first-line option - of these two options angiotensin II receptor blockers are preferred for black African or African-Caribbean diabetic patients.

Doxazosin is an example of an alpha-1 blocker. This class is used 4th line after ACE inhibitors/angiotensin II receptor blockers, CCBs, and diuretics.

Indapamide is a thiazide-like diuretic used after the combination of ACE inhibitors/angiotensin II receptor blockers and CCBs.

Lifestyle advice is important in the management of any patient with high blood pressure. In this situation, pharmacological management is indicated as this man has stage 2 hypertension as his ambulatory blood pressure monitoring is >150/95 mmHg.

Question:

A 57-year-old man is seen in clinic with a 4-month history of aches, swellings in his legs, and itchy, dry skin. His symptoms are worse on exertion and when standing, especially towards the end of the day when his swelling is most prominent. He has a past medical history of obesity and smokes 30 cigarettes daily.

His lower limbs appear eczematous with hyperpigmentation, and shallow, irregular ulcers are present. The skin around his ankles is hardened and tight. An ankle-brachial pressure index measurement is normal.

Given the likely diagnosis, if any, what is the diagnostic investigation of choice?

A.CT angiography (CTA)

B.CT venogram

C.Doppler ultrasound

D.Magnetic resonance angiography (MRA)

E.Venous duplex ultrasound

Answer:Venous duplex ultrasound

Explanation:

Venous duplex ultrasound is the investigation of choice for varicose veins/chronic venous disease - it will show retrograde venous flow

Important for meLess important

Venous duplex ultrasound is correct. This patient has evidence of chronic venous insufficiency (CVI) given their history of obesity and lower limb swelling that is worse at the end of the day. Lipodermatosclerosis (tightened, hardened skin), venous ulcers (shallow and irregular ulcers), and haemosiderin deposition (skin hyperpigmentation) support a diagnosis of CVI. The investigation of choice of CVI is a venous duplex ultrasound scan, which would show retrograde venous flow due to incompetent venous valves.

CT venogram is incorrect as this is not routinely performed in the investigation and management of varicose veins due to its costs, relative invasiveness, and risks (such as bleeding, infection, and unnecessary exposure to ionising radiation). It may be used to assess varicose veins before surgery, however, it does not play a role in its initial diagnosis.

CT angiography (CTA) and Magnetic resonance angiography (MRA) are incorrect as these are investigations considered in PAD. As mentioned above, these tests would not assess venous flow, therefore making them less appropriate for CVI. The absence of typical features of PAD, such as intermittent claudication, pallor, paraesthesia, arterial ulcers (which tend to be circular and deep), and cold peripheries, make PAD less likely.

Question:

A 23-year-old woman who uses the combined oral contraceptive pill (COCP) called the surgery after missing 1 dose. She usually takes one tablet at 10 pm each day, however, she missed the dose and remembered the next morning. Her last menstrual period was 10 days ago.

What is the most appropriate advice to give this patient?

A.Copper intrauterine device (IUD)

B.Discard the missed pill and take the next pill at 10 pm

C.Take the missed dose immediately and then take the next pill at 10pm

D.Take the missed pill and start the next pack without the 7 days break

E.Ulipristal

Answer:Take the missed dose immediately and then take the next pill at 10pm

Explanation:

COCP: if 1 pill is missed, take the last pill ASAP but no further action is needed

Important for meLess important

This woman has missed 1 pill, thus, the advice would be to take the missed pill immediately, and then take the next pill at the usual time which is 10 pm in this case. She can take the 7-day pill-free break as normal it is only 1 missed pill.

Copper IUD could be used as emergency contraception after unprotected intercourse in those who are not on contraception; this woman does not need an IUD as she is on the COCP and has missed 1 dose only.

Discarding the missed pill is inappropriate as would be her at risk of an unwanted pregnancy.

Starting the next pack without the 7-day break is wrong as she has only missed one dose and can take the 7-day break as usual. If she missed 2 pills and there were fewer than 7 pills left in the pack, she would have to start the next pack without a break.

Ulipristal is also used as emergency contraception within 120 hours of unprotected sexual intercourse. It is not needed in this woman as taking the missed pill would be sufficient.

Question:

A 4-year-old girl is brought to see her GP by her mother. She has noticed that she has become more irritable over the last 5 days following a brief period of coryzal symptoms and has had a mild fever.

On otoscopic examination, the right tympanic membrane and ear canal appear normal but the left tympanic membrane is bulging and erythematous with loss of the light reflex. There is no ear discharge present.

Which of the following is most likely to have caused this presentation?

A.Escherichia coli

B.Haemophilus influenzae

C.Streptococcus pyogenes

D.Influenza virus

E.Respiratory syncytial virus (RSV)

Answer:Haemophilus influenzae

Explanation:

Haemophilus influenzae is a common cause of bacterial otitis media

Important for meLess important

The correct answer is 'Haemophilus influenzae'.

This child is presenting with symptoms that are typical for otitis media. While otitis media is normally preceded by a viral upper respiratory tract infection (as suggested by the coryzal symptoms) it is generally caused by bacteria. Haemophilus influenzae is one of the most common causes of bacterial otitis media.

Escherichia coli is a bacteria that commonly causes infections in children, however, it is generally a cause of urinary tract infections rather than ear infections.

Streptococcus pyogenes is another bacteria that commonly causes infections in children, however, it is a common cause of tonsillitis rather than otitis media.

The influenza virus and RSV can both cause upper respiratory tract infections in children, but these would generally precede otitis media rather than directly cause it.

Question:

A 24-year-old male has been admitted to the gastroenterology ward with a two-day history of severe bloody diarrhoea, passing 7-8 stools a day, with abdominal pain and poor oral intake. Colonoscopy shows inflammation throughout the colon and biopsies confirm Crohn's disease. He has no significant past medical history and takes no regular medication.

Intravenous hydrocortisone has been prescribed to induce remission. The gastroenterologist discusses starting azathioprine with the patient with the aim to induce remission and long-term maintenance.

Which of the following blood tests must be carried out before starting this new medication?

A.Anti-nuclear antibody

B.CRP

C.Liver function tests

D.Thiopurine methyltransferase

E.Glucose-6-phosphate dehydrogenase

Answer:Thiopurine methyltransferase

Explanation:

Azathioprine - check thiopurine methyltransferase deficiency (TPMT) before treatment

Important for meLess important

Thiopurine methyltransferase (TPMT) metabolises thiopurine drugs, including azathioprine and mercaptopurine. TPMT deficiency can lead to myelosuppression and so an alternative medication should be considered if the TPMT levels are reduced or absent.

Anti-nuclear antibody is an autoantibody, commonly positive in patients with systemic lupus erythematosus, systemic sclerosis and autoimmune hepatitis. As such, it is not involved in the management of Crohn's disease.

CRP may be important in identifying any underlying infection/inflammation and for disease monitoring but is not the most important blood test to carry out before starting azathioprine.

LFTs may be important to monitoring hepatic function but is not the most important blood test to carry out before starting azathioprine.

Glucose-6-phosphate dehydrogenase deficiency causes haemolytic anaemia, and so is not related to this scenario.

Question:

A 20-year-old woman presents to the emergency department with a sore throat, and shortness of breath. She appears septic with a temperature of 39.5ºC. She was recently treated for tonsillitis with oral antibiotics but did not finish the full course of antibiotics. She is seen to have exudative tonsilitis on oral examination. cardiovascular examination is grossly normal except for slight warmth and swelling along the right sternocleidomastoid muscle. Chest x-ray shows bilateral infiltrates. CT chest showed likely multiple septic emboli and later a CT neck with contrast showed a thrombus in the right internal jugular vein.

What is the most likely diagnosis?

A.Drug induced thrombocytopaenia

B.Idiopathic thrombocytopaenia

C.Infective endocarditis

D.Lemierre's syndrome

E.Neck trauma

Answer:Lemierre's syndrome

Explanation:

Lemierre's syndrome presents with thrombophlebitis of the internal jugular vein following an anaerobic oropharngeal infection.

Important for meLess important

Lemierre's syndrome is typically caused by a primary infection in the oropharyngeal region. Infections, if left untreated can spread to the carotid sheath which contains the internal jugular vein (IJV). The spread of infection to the IJV can cause a thrombus to be formed and then septic emboli occur which typically goes to the lungs, liver, and other areas in the body. Therefore, Lemierre's syndrome best matches the description above and is the correct answer.

Certain antibiotics can cause thrombocytopenia, but this would not cause septic emboli and thrombus formation in the IJV and would, in fact, increase the risk of bleeding rather than clot formation (this is the same for ITP).

Although infective endocarditis can cause septic emboli, it would not explain the thrombus formation in the IJV and the cardiovascular examination was grossly normal with no mention of heart murmurs which would suggest again that Lemierre's syndrome is the more likely correct answer in this particular question.

There is no history to indicate that there has been neck trauma which could have explained the clot formation in the IJV but this would still not have explained the septic emboli in the lungs.

Question:

A paediatrician reviews a neonate with their mother on the ward round. The neonate is 19-hours-old and there are currently no concerns. Whilst on the ward round, the mother expresses concern with the child's hearing, as her mother was deaf. She worries that her child will also have issues hearing.

What screening tool is most appropriate to consider for this patient?

A.6 month speech and language assessment

B.Impedance audiometry tests

C.Otoacoustic emission test

D.Pure tone audiometry

E.Weber's and Rinnes

Answer:Otoacoustic emission test

Explanation:

Otoacoustic emission test is used to screen newborns for hearing problems

Important for meLess important

The otoacoustic emission test is one used is new-born screening. It is routine in the UK and if a newborn fails this test, they are then referred to have impedance audiometry testing. This is routine for all newborns.

A 6-month speech and language assessment does not exist. Babies are also unlikely to be talking by this stage.

Impedance audiometry testing is not routine and is only carried out if someone failed the otoacoustic emission test. As we do not know whether the patient failed her otoacoustic test, it would not be sensible to ask this before we determine if she had this test or not. The question also asks for routine tests.

Pure tone audiometry is only done when someone needs a hearing test. This is an adult hearing test and is not routinely performed.

Weber's and Rinne's are screening tools carried out by a clinician assessing for hearing loss - used for adults. The child is unlikely to comply with the test making it difficult to assess hearing using these methods.

Question:

A 2-day-old baby has not passed meconium yet. Your consultant tells you they believe that the child has Hirschsprung's disease, and asks you what your initial management would be. Until a firm diagnosis can be made and more definite treatment given, which of these is the best initial treatment for this child?

A.Anorectal Pull through

B.Bowel Irrigation

C.Full Thickness Rectal Biopsy

D.Lactulose

E.Vancomycin

Answer:Bowel Irrigation

Explanation:

The initial management in Hirschprung's disease is rectal washouts/bowel irrigation

Important for meLess important

If Hirschsprung;s disease is suspected, a full thickness rectal biopsy should be performed as investigation. However, while this is being organised etc, bowel washouts should be performed to allow the baby to pass meconium, so this is the initial treatment. Once a diagnosis has been made, an anorectal pull through is generally performed as definitive management.

Anorectal pull through is the definitive management, not initial.

Bowel Irrigation/Rectal Washouts is the best initial treatment.

Rectal biopsy is used for diagnosis.

Lactulose is used for constipation in children but would be inappropriate in this case.

Vancomycin is inappropriate.

Question:

A 68-year-old female is being reviewed by the GP due to a recent history of back pain. This has been going on for a couple of months now and is not helped by simple analgesia. The patient reports losing weight unintentionally too. For the past 6-months the patient has been taking iron tablets for an underlying anaemia.

Given the likely diagnosis, and assuming the disease is in its early stages, what biochemical pattern would be on testing the patients blood?

A.High calcium. Normal phosphate. Normal alkaline phosphate

B.High calcium. Low phosphate. Normal alkaline phosphate

C.High calcium. Normal phosphate. Low alkaline phosphate

D.High calcium. Low phosphate. Low alkaline phosphate

E.Low calcium. Normal phosphate. Normal alkaline phosphate

Answer:High calcium. Normal phosphate. Normal alkaline phosphate

Explanation:

Myeloma without metastasis is characterised by high calcium, normal/high phosphate and normal alkaline phosphate

Important for meLess important

The most likely underlying diagnosis is myeloma. Myeloma typically presents with the CRAB features:

Elevated calcium

Renal failure

Anaemia

Bone pain

The stem states this lady is in the early stages of disease. Therefore it is unlikely there are any bony metastases. In the early stages of disease the most likely biochemical pattern to see in myeloma as:

Raised calcium

Normal or high phosphate

Normal alkaline phosphate

Alkaline phosphate is usually only elevated in metastatic disease.

Question:

A 50 year-old woman presents with polyuria and polydipsia. She has recently been started on citalopram for depression, but is otherwise fit and well. She has complained of constipation recently, but has put this down to her new medication.

Calcium 2.8mmol/l

Phosphate 0.7mmol/l

Parathyroid hormone 5.0pmol/l (1.2-5.8pmol/l)

Renal function and full blood count are normal.

What is the most likely cause for these blood results?

A.Parathyroid adenoma

B.Myeloma

C.Metastatic cancer

D.Drug induced

E.Parathyroid hyperplasia

Answer:Parathyroid adenoma

Explanation:

The PTH level in primary hyperparathyroidism may be normal

Important for meLess important

This woman has signs and symptoms of hypercalcaemia. Her parathyroid hormone should be suppressed in the presence of hypercalcaemia. Given that it is normal (inappropriately), this indicates the parathyroid as the cause for the hypercalcaemia. The most common cause of hyperparathyroidism is an adenoma.

Question:

A 19-year-old male student is admitted in the first week of university after a night-out for a football club social.

He presents with rigidity, disorientation and a temperature of 39.4ºC. You suspect he may have serotonin syndrome.

Which of the following drugs is most likely to be responsible in this case?

A.Cannabis

B.Amitriptyline

C.Ecstasy

D.Codeine

E.Alcohol

Answer:Ecstasy

Explanation:

Serotonin syndrome can be caused by overdose of ecstasy

Important for meLess important

Serotonin syndrome is most commonly associated with SSRI and MAOI antidepressants, but can also be caused by ecstasy and amphetamines.

It has an onset within hours and presents with diaphoresis and pyrexia. On examination, there is often hyperreflexia with clonus and dilation of the pupils.

Question:

A 60-year-old homeless lady is brought into the emergency department by the paramedics. They have found her unconscious and an ECG shows a broad complex polymorphic tachycardia indicative of torsades de pointes. Which of the following could be a cause of this woman's arrhythmia?

A.Hypothermia

B.Hypercalcaemia

C.Hyperthyroidism

D.Hypermagnesaemia

E.Hypoglycemia

Answer:Hypothermia

Explanation:

Hypothermia is a cause of Torsades de pointes

Important for meLess important

This question is asking about a patient presenting with a broad complex polymorphic tachycardia. This is characteristic of torsades de pointes. Therefore the correct answer is hypothermia, which is a known cause.

Hypocalcaemia, hypokalemia, hypomagnesaemia are all causes of torsades de pointes and not their hyper counterparts listed above.

There is no link between hypoglycemia or hyperthyroidism and Torsades de Pointes

Question:

A 72-year-old man is reviewed by his GP after being discharged from the emergency department due to falls. This is his third fall in four weeks. He describes feeling light-headed whenever he stands up. His lying-standing blood pressure is recorded as:

Lying 143/94 mmHg

Standing 110/78 mmHg

His notes show a past medical history of benign prostatic hyperplasia, type 2 diabetes, and depression.

What medication is most likely to have contributed to his presentation?

A.Atorvastatin

B.Doxazosin

C.Linagliptin

D.Metformin

E.Sertraline

Answer:Doxazosin

Explanation:

Doxazosin can cause postural hypotension

Important for meLess important

This patient has had multiple falls, which appear to be secondary to postural hypotension, as there is a drop in his systolic blood pressure of greater than 30mmHg between lying and standing. Out of the medications listed, the most likely to cause postural hypotension is the alpha-blocker doxazosin. Alpha-blockers are used in the management of hypertension and benign prostatic hypertension. They reduce activation of postsynaptic alpha-1 adrenergic receptors, causing both arteriolar and venous vasodilation. This leads to decreased total peripheral resistance and hence reduces blood pressure.

Atorvastatin is not associated with postural hypotension. Common side effects of atorvastatin include gastrointestinal upset and muscle pain.

Linagliptin is used to help manage this patient's diabetes. Typically, patients complain of weight gain, myalgia, and hypoglycaemic episodes with this medication - it is not associated with postural hypotension.

Metformin is another drug used to manage this patient's diabetes. It is not associated with postural hypotension but can lead to myalgia or gastrointestinal upset.

Sertraline is a selective serotonin reuptake inhibitor that is used to manage this patient's depression. This drug is not typically associated with postural hypotension; however, it can cause diarrhoea, tremor, dyspepsia, and fatigue.

Question:

A 74-year-old male who is currently receiving end of life care and is on opioids for pain management calls you over and asks for some pain relief for some breakthrough pain that he is experiencing. His past medical history includes metastatic lung cancer, hypertension, type 2 diabetes mellitus and chronic kidney disease.

His latest blood results from earlier in the day are shown below.

Hb 121 g/L Male: (135-180)

Female: (115 - 160)

Platelets 340 \* 109/L (150 - 400)

WBC 9.7 \* 109/L (4.0 - 11.0)

Na+ 142 mmol/L (135 - 145)

K+ 4.9 mmol/L (3.5 - 5.0)

Urea 25.7 mmol/L (2.0 - 7.0)

Creatinine 624 µmol/L (55 - 120)

eGFR 9 mL/min/1.73m² (>90)

CRP 19 mg/L (< 5)

What pain relief is most appropriate in this situation?

A.IV morphine

B.Oral oxycodone

C.Sublingual fentanyl

D.IV oxycodone

E.Oral ibuprofen

Answer:Sublingual fentanyl

Explanation:

Buprenorphine or fentanyl are the opioids of choice for pain relief in palliative care patients with severe renal impairment, as they are not renally excreted and therefore are less likely to cause toxicity than morphine

Important for meLess important

Fentanyl is the pain relief of choice in this scenario as the patient has severe renal impairment (GFR <10mL/min/1.73²). Fentanyl is primarily metabolised in the liver and so is less likely to cause toxicity than morphine in patients with severe renal impairment. Buprenorphine is also an option for pain relief in this situation.

Oxycodone (oral and IV) can be used in mild to moderate renal impairment (GFR 10-50mL/min/1.73²) but it is avoided in severe renal impairment. This is because, despite being mainly metabolised in the liver, some is still renally excreted and so may lead to toxicity in severe renal impairment.

Ibuprofen would not be appropriate in this setting as it is further down the WHO analgesic ladder than opioids and would not provide adequate pain relief. It would also be contraindicated as the patient has poor renal function.

Question:

A 15-year-old boy presents to his GP complaining of knee pain for one week. He has no significant past medical history. Which of the following would make a diagnosis of Osgood-Schlatter disease more likely?

A.Bilateral knee pain.

B.Sudden onset of symptoms and acutely painful.

C.Knee pain isolated to the posterior aspect of the knee joint.

D.Pain relieved by rest and made worse by kneeling and activity, such as running or jumping.

E.Locking of the knee on movement.

Answer:Pain relieved by rest and made worse by kneeling and activity, such as running or jumping.

Explanation:

Osgood-Schlatter disease may be diagnosed on the basis of clinical features alone. This age group (adolescent) is the most likely age to suffer from this condition and is localized to the tibial tuberosity.

Typically, pain is:

Unilateral (but may be bilateral in up to 30% of people).

Gradual in onset and initially mild and intermittent, but may progress to become severe and continuous.

Relieved by rest and made worse by kneeling and activity, such as running or jumping.

Question:

Which one of the following statements regarding heparin-induced thrombocytopaenia (HIT) is correct?

A.A fall in the platelet count of greater than 15% is diagnostic

B.HIT is a prothrombotic condition

C.Tranexamic acid is the treatment of choice

D.HIT usually develops with 2-3 days of starting treatment

E.HIT is more common with low-molecular weight heparin than with unfractionated heparin

Answer:HIT is a prothrombotic condition

Explanation:

Question:

You are the GP trainee doing your morning clinic. You see a 30-year-old woman with coeliac disease.

Which of the following is indicated as part of her management?

A.Administration of the pertussis vaccine

B.Administration of the pneumococcal vaccine

C.Five yearly blood tests for full blood count (FBC) and ferritin

D.Annual stool test for faecal occult blood

E.Annual stool test for calprotectin

Answer:Administration of the pneumococcal vaccine

Explanation:

Coeliac UK recommends that everyone with coeliac disease is vaccinated against pneumococcal infection and has a booster every five years, as there is a potential for people with coeliac disease to develop overwhelming pneumococcal sepsis due to hyposplenism

Important for meLess important

Coeliac UK recommend that everyone with coeliac disease is vaccinated against pneumococcal infection as there is a risk of hyposplenism.

Patients do not need any additional pertussis vaccines apart from those in the vaccination schedule.

NICE CKS guidelines recommend annual blood tests for FBC, ferritin, thyroid function tests, liver function tests, B12 and folate.

Calprotectin is used to test for gut inflammation, typically as part of the work up for inflammatory bowel disease .

Faecal occult blood is usually tested for if there are concerns about a bowel malignancy.

Question:

A 30-year-old woman is admitted to hospital with an unprovoked first seizure. She attends neurology clinic and asks for advice regarding driving as she uses her car to drop her children to school. The neurologist has not made a formal diagnosis of epilepsy but will review the patient again in the clinic in 6 months time. What should you advise her?

A.The hospital will inform the DVLA and she must never drive again

B.She should inform the DVLA and will have to be seizure free for 6 months before she can apply to have her license reinstated

C.She has only had one seizure so can drive normally without informing the DVLA

D.She has only had one seizure so can drive normally but should inform the DVLA

E.She should inform the DVLA who will require her to be seizure free for 5 years before she can apply to have her license reinstated

Answer:She should inform the DVLA and will have to be seizure free for 6 months before she can apply to have her license reinstated

Explanation:

Following a first seizure, patients must be seizure for 6 months before they may reapply to the DVLA for their license to be reissued. If the patient has a formal diagnosis of epilepsy they must be seizure-free for at least 12 months before they may reapply to the DVLA for their license to be reissued.

It is important to note that informing the DVLA is the patient's responsibility and she must not drive until given permission by the DVLA. The medical team is not responsible for informing the DVLA.

Note that this answer would be different if the patient was to drive a public or heavy goods vehicle.

Question:

You are a fourth-year medical student undertaking a placement in an acute psychiatric ward and are asked to take a history from Peter, a patient with a background of schizophrenia.

You begin by asking Peter how long he has been admitted on the ward for? He replies by talking in length about his admission to the hospital and how he was brought here by the police. He then begins to talk about how he does not like the police and then onto many other things he does not like at home. However, Peter states that nonetheless he still misses home as he has been admitted for 3 weeks now.

What form of thought disorder has Peter demonstrated here?

A.Circumstantiality

B.Clang associations

C.Flight of ideas

D.Perseveration

E.Tangentiality

Answer:Circumstantiality

Explanation:

Circumstantiality is the inability to answer a question without giving excessive, unnecessary detail

Important for meLess important

Circumstantiality is the correct answer as it describes a situation in which a patient may reply to a question with an irrelevant, detailed answer, but will eventually return to the point.

Clang associations describes speech in which topics are related to each other only by sounding similar.

Flight of ideas, a feature of mania, is thought disorder where there are leaps from one topic to another but with discernible links between them.

Perseveration describes persistent repetition of speech on the same subject, despite attempting to change the subject.

Tangentiality describes speech which wanders from a topic, without returning to it.

Question:

A 47-year-old male presents to the emergency department with weakness in both legs that is progressing upwards. It started one week ago with some leg pain that later developed into weakness. On examination, there is a bilateral reduction in patellar reflex, strength throughout the neurological examination in the lower limbs bilaterally is 3/5 and sensation is normal. He has no relevant past medical history and takes no regular medications.

Which one of the following organisms is most likely to have caused his symptoms?

A.Campylobacter jejuni

B.Escherichia coli

C.Coxsackievirus

D.Herpes simplex virus

E.Varicella-zoster virus

Answer:Campylobacter jejuni

Explanation:

Guillain-Barre syndrome is classically triggered by Campylobacter jejuni infection

Important for meLess important

The correct answer is Campylobacter jejuni. The patient presents with the typical symptoms of Guillain-Barre syndrome: progressive, symmetrical weakness of the limbs, often in an ascending fashion. This is immune-mediated demyelination of the peripheral nervous system often triggered by an infection, classically caused by Campylobacter jejuni. Around 65% of patients experience leg or back pain prior to the development of weakness, consistent with the patient in this vignette. The ascending weakness of the legs, in conjunction with the diminished reflexes and normal sensation, is typical of the disease.

Escherichia coli is the most common cause of traveller's diarrhoea and gastroenteritis. It has no role in the development of Guillain-Barre syndrome.

Coxsackievirus is the most common cause of viral meningitis in adults but has no link with Guillain-Barre syndrome.

Herpes simplex virus causes genital and labial sores. It has no role in the development of this disease.

Varicella-zoster virus causes chickenpox and shingles. It has not been found to be connected with Guillain-Barre syndrome.

Question:

A 63-year-old woman is recovering in the intensive care unit (ICU) after undergoing an ultraradical cytoreductive surgery for ovarian cancer. There was 900ml of blood loss and was transfused with a unit of packed red cells. The patient only produced 50ml of urine.

48hours post-surgery her blood pressure drops to 96/45 mmHg and her heart rate was 140bpm. Her surgical drain did not produce any fluid.

She was given 500ml rapid bolus of normal saline over 5 minutes which only produced 10ml of dark brown urine within the 2 hours after the fluid challenge.

What complication is most likely presented?

A.Acute haemolytic reaction

B.Acute tubular necrosis

C.Cardiogenic shock

D.Disseminated intravascular coagulation

E.Reactive haemorrhage

Answer:Acute tubular necrosis

Explanation:

Acute tubular necrosis - poor response to fluid challenge

Important for meLess important

Haemorrhage is one of the most common causes of acute tubular necrosis . Hypotension with compensatory tachycardia is a classic sign seen with acute kidney injury due to haemorrhage. A fluid challenge was done with this patient to identify the cause of the oliguria. In cases of pre-renal uraemia, the fluid challenge would have caused an increase in urine output. However, in this case, there is tubular cell injury due to the blood loss during the surgery. This cell injury has led to the production of red cell casts which produced brown urine.

Acute haemolytic reaction can occur immediately or within 24 hours of a blood transfusion. This reaction commonly presents with fever, severe shortness of breath, red urine, pruritus, or urticaria.

Cardiogenic shock is characterised by systolic blood pressure <90mmHg, low urine output, cold peripheries and high lactate. It is not recommended to do a fluid challenge in a patient with cardiogenic shock as it will increase the preload and therefore put more strain on the heart.

Disseminated intravascular coagulation (DIC) can be a complication of transfusion, caused by an imbalance in clotting and bleeding. DIC can present with petechiae on the soft palate or extremities, ecchymosis and thrombocytopenia on the site of the cannula.

Reactive haemorrhage occurs when hemostasis appears secure but then bleeding restarts. Reactive haemorrhage happens within 24 hours of the operation, however, this patient's symptoms begin after 48 hours so this is not the cause.

Question:

A 5-year-old boy with a history of type I diabetes presents with a 12-hour history of vomiting and abdominal pain. An arterial blood gas (ABG) is taken in the emergency department.

pH 7.25 (7.35-7.45)

pCO2 4.9 kPa (4.5-6.0)

pO2 11 kPa (10-14)

Glucose 14 mmol/L (4-7)

A urine dipstick is also performed.

Ketones +++

He is treated with intravenous fluids (including supplementary potassium) and a fixed rate insulin infusion (FRII) according to local protocol.

After 3 hours, the boy has a seizure.

What is the most likely underlying aetiology for the seizure?

A.Hypoglycaemia

B.Acidosis

C.Hypokalaemia

D.Hyperkalaemia

E.Cerebral oedema

Answer:Cerebral oedema

Explanation:

Cerebral oedema is an important complication of fluid resuscitation in DKA, especially in young patients

Important for meLess important

This boy presents with symptoms of abdominal pain, nausea and vomiting. He has elevated blood ketones, a blood sugar > 11 mmol/L and a pH of < 7.30, so he meets diagnostic criteria for diabetic ketoacidosis (DKA). He is appropriately treated with intravenous fluids and insulin. However, an important complication of rapid fluid resuscitation in DKA is cerebral oedema, which can cause headache, irritability, seizures and ultimately coma and death. It occurs in up to 1% of treatments for DKA, especially in young patients.

Hypoglycaemia may result from rapid use of insulin if the patient's blood glucose is not monitored and supplemental glucose/dextrose not given. Hypoglycaemia can also cause seizures, but DKA management rarely causes symptomatic hypoglycaemia if the patient is closely monitored.

The patient is acidotic but this is not a common cause of seizures.

The use of insulin is likely to cause hypokalaemia, although if this is corrected too quickly the patient could also suffer from hyperkalaemia. Neither hypokalaemia nor hyperkalaemia cause seizures, although they are very important due to their effects on the myocardium.

Question:

A 31-year-old man with a background of moderate ulcerative colitis for which he takes mesalazine presents with a 1-week history of feeling generally unwell with a sore throat and a fever.

What is the most important initial investigation?

A.C-reactive protein

B.Full blood count

C.Monospot test

D.No investigation required

E.Throat swab

Answer:Full blood count

Explanation:

Aminosalicylates are associated with a variety of haematological adverse effects, including agranulocytosis - FBC is a key investigation

Important for meLess important

A patient who is taking aminosalicylates and becomes unwell with a sore throat, fever, fatigue or bleeding gums needs an urgent full blood count to rule out agranulocytosis.

C-reactive protein is not that helpful here and would be unlikely to change your management plan. It may form part of the overall management plan, however, is not the most important initial investigation.

The monospot test for glandular fever may be helpful if glandular fever is suspected, however, it is not the most important initial investigation.

A throat swab again may form part of the overall management plan, however, is not the most important initial investigation.

Question:

An 18-year-old university student has come to see you about the results of triple swabs that she had done for a yellow vaginal discharge. Microscopy has shown 'intracellular Gram-negative diplococci'. She is fit and well otherwise with a negative pregnancy test. What treatment regime would you initiate?

A.IM ceftriaxone

B.Oral azithromycin

C.Oral penicillin

D.IM benzylpenicillin

E.Oral doxycycline

Answer:IM ceftriaxone

Explanation:

Intramuscular ceftriaxone is the treatment of choice for Gonorrhoea

Important for meLess important

Question:

A 45-year-old woman presents to the emergency department complaining of continuing epistaxis despite constant pressure and head tilting. She undergoes silver nitrate cautery.

After this, she tells you she has no other symptoms and no family history of bleeding disorders. Her past medical history is unremarkable. Her examination is normal.

Initial blood tests show:

Hb 122 g/L Male: (135-180)

Female: (115 - 160)

Platelets 32 \* 109/L (150 - 400)

WBC 5.6 \* 109/L (4.0 - 11.0)

Activated partial thromboplastin time (APTT) 34 secs (25-35 secs)

INR 1.1 (0.8-1.1)

Urea 6.7 mmol/L (2.0 - 7.0)

Creatinine 115 µmol/L (55 - 120)

What is the most likely diagnosis?

A.Acute myeloid leukaemia

B.Haemophilia A

C.Immune thrombocytopenic purpura

D.Thrombotic thrombocytopenic purpura

E.Von Willebrand disease

Answer:Immune thrombocytopenic purpura

Explanation:

ITP should be considered in the presence of symptoms that suggest isolated thrombocytopenia e.g. epistaxis, menorrhagia

Important for meLess important

Immune thrombocytopenic purpura (ITP) is correct. This patient has presented with severe epistaxis. She has no other symptoms suggestive of other diseases. In the presence of symptoms that suggest isolated thrombocytopenia, you should suspect ITP as a diagnosis. Blood tests show an isolated thrombocytopenia characteristic of ITP.

Acute myeloid leukaemia (AML) is incorrect. This patient has presented with severe epistaxis, however, she has no other symptoms. In AML you would expect the patient to have symptoms such as fatigue, petechiae, pallor and recurrent infections. Typically patients with AML are over 65. Blood tests also show isolated thrombocytopaenia therefore ITP is a more likely diagnosis.

Haemophilia A is incorrect. This patient is presenting with isolated severe epistaxis. Haemophilia A is an inherited clotting abnormality with an X-linked recessive pattern. Therefore it would be very rare for a female patient to have haemophilia. Furthermore, in haemophilia, you would expect a prolonged APTT.

Thrombotic thrombocytopenic purpura (TTP) is incorrect. This patient has presented with isolated epistaxis. TTP is a rare condition that presents with a classic pentad of microangiopathic haemolytic anaemia, purpura, renal insufficiency, neurological abnormalities and fever. These are not present in this patient.

Von Willebrand disease (VWD) is incorrect. This patient has presented with isolated severe epistaxis. This could be a feature of Von Willebrand disease. However the most common types of VWD are autosomal dominant, and therefore a negative family history of bleeding disorders makes another diagnosis more likely.

Question:

A 68-year-old patient presents to her GP with back pain. There is no history of trauma and the pain is relieved by lying down. She had a hysterectomy when she was 39 due to obstetric complications, and has a history of poorly controlled asthma.

Her FRAX® score gives a 10-year fracture risk of 16%, so a dual-energy x-ray absorptiometry (DEXA) scan is arranged. Relevant blood tests are also done. Results are shown below:

Calcium 1.8 mmol/L (2.1-2.6)

Vitamin D 17.2 ng/ml (≥20.0)

Phosphate 1.2 mmol/L (0.8-1.4)

T-score -3.2

What is the most appropriate next step in her management?

A.Alendronic acid

B.Hormone replacement therapy

C.Vitamin D and alendronic acid

D.Vitamin D and calcium supplements

E.Vitamin D and zoledronic acid

Answer:Vitamin D and calcium supplements

Explanation:

Hypocalcemia/vitamin D deficiency should be corrected before giving bisphosphonates

Important for meLess important

Vitamin D and calcium supplements is correct. This question involves a woman presenting with a history suggestive of a vertebral compression fracture, which combined with a DEXA T-score below -2.5, gives a diagnosis of osteoporosis. She also has significant risk factors for osteoporosis (sex, likely oral steroid use in poorly controlled asthma, hysterectomy under the age of 45). With a T-score below -2.5, bone-sparing medication should be prescribed. Bisphosphonates (e.g. alendronic acid) are first-line. However, she is deficient in calcium and vitamin D, which should be corrected before giving bisphosphonates. This is because bisphosphonates may worsen hypocalcemia due to reduced calcium efflux from bones, potentially resulting in arrhythmias or seizures. Thus, vitamin D and calcium levels must be corrected to support calcium homeostasis.

Alendronic acid is incorrect. Calcium and vitamin D deficiencies must be corrected before starting bisphosphonates due to the risk of hypocalcaemia developing if she were to take bisphosphonates without replenishing them.

Hormone replacement therapy is incorrect. Although beneficial in women recently starting menopause, this will not be effective in improving bone density in this patient. This option also does not highlight the necessity for correcting deficiencies. It is no longer recommended for primary or secondary prevention of osteoporosis due to concerns about increased rates of cardiovascular disease and breast cancer unless the woman is suffering from vasomotor symptoms.

Vitamin D and alendronic acid is incorrect. Vitamin D and calcium should be corrected before giving alendronic acid. This option also doesn't include calcium supplements.

Vitamin D and zoledronic acid is incorrect. Vitamin D and calcium should be corrected before giving alendronic acid. This option also doesn't include calcium supplements. As well as this, zoledronic acid is second-line for the treatment of osteoporosis and should only be started under specialist guidance.

Question:

There is decreased secretion of which one of the following hormones in response to major surgery:

A.Insulin

B.Cortisol

C.Renin

D.Anti diuretic hormone

E.Prolactin

Answer:Insulin

Explanation:

Endocrine parameters reduced in stress response:

Insulin

Testosterone

Oestrogen

Important for meLess important

Insulin is often released in decreased quantities following surgery.

Question:

A 61 year old homosexual man presents to the genitourinary medicine clinic with an ulcer on the tip of his penis. He is not sure how long it has been there as it has not caused him any pain. He is unsure if there has been any discharge. There is some inguinal lymphadenopathy on examination but this is not painful. What is the most likely cause?

A.Human immunodeficiency virus

B.Lymphogranuloma venerum

C.Haemophilus ducreyi

D.Treponema pallidum

E.Penile malignancy

Answer:Treponema pallidum

Explanation:

The clue here is in the history. The lesion is painless. Haemophilus ducreyi presents with an ulcer which is painful. Similarly Lymphogranuloma venerum presents with tender swollen inguinal nodes (buboes) but in this case the lymphadenopathy is painless. HIV itself does not cause ulceration, though it may be possible that the ulcer itself is a result of an opportunistic infection in the context of HIV infection.

Penile malignancy is not an unreasonable guess given this patients age and the painless nature of the lesion, however it is extremely rare. In this case the painless ulcer is most likey that of primary syphilis.

Question:

An 11-year-old boy is seen in the Emergency Department after falling onto his left shoulder whilst playing football.

The x-ray is shown below:

© Image used on license from Radiopaedia

What injuries, if any, are seen?

A.Clavicular fracture + Salter-Harris type I humeral fracture

B.Left shoulder dislocation

C.Clavicular fracture + greenstick humeral fracture

D.Salter-Harris type III humeral fracture

E.Buckle humeral fracture

Answer:Clavicular fracture + Salter-Harris type I humeral fracture

Explanation:

There is a transverse fracture of the clavicle in the top-left of the radiograph, but more strikingly is the complete slip of the humeral epiphysis - Salter-Harris type I injury of the humerus.

Question:

A 65-year-old man presents to the emergency department with haematemesis. He has a past medical history of atrial fibrillation. He is on warfarin.

Observations:

Heart rate 110 beats per minute

Blood pressure 94/58 mmHg

On examination, there is dried blood around his mouth. He is mildly tender in the epigastrium. The abdomen is soft and bowel sounds are present.

Blood tests:

Hb 101 g/L Male: (135-180)

Female: (115 - 160)

Platelets 189 \* 109/L (150 - 400)

WBC 5.2 \* 109/L (4.0 - 11.0)

Na+ 137 mmol/L (135 - 145)

K+ 4.2 mmol/L (3.5 - 5.0)

Urea 5.1 mmol/L (2.0 - 7.0)

Creatinine 88 µmol/L (55 - 120)

CRP 4 mg/L (< 5)

Bilirubin 12 µmol/L (3 - 17)

ALP 88 u/L (30 - 100)

ALT 32 u/L (3 - 40)

γGT 44 u/L (8 - 60)

Albumin 36 g/L (35 - 50)

INR 5.4 (0.8 -1.1)

What is the appropriate management of his anticoagulation?

A.Stop warfarin for two doses

B.Stop warfarin indefinitely

C.Stop warfarin and given intravenous vitamin K 3mg

D.Stop warfarin and given oral vitamin K 3mg

E.Stop warfarin and give intravenous vitamin K 5mg and prothrombin complex concentrate

Answer:Stop warfarin and give intravenous vitamin K 5mg and prothrombin complex concentrate

Explanation:

Major bleeding - stop warfarin, give intravenous vitamin K 5mg, prothrombin complex concentrate

Important for meLess important

Stop warfarin and give intravenous vitamin K 5mg and prothrombin complex concentrate is the correct answer. The patient presents with major bleeding (haematemesis, anaemia, tachycardia, hypotension). The management of major bleeding on warfarin is to stop warfarin and give intravenous vitamin K 5mg and prothrombin complex concentrate.

Stop warfarin indefinitely is incorrect. We do not have enough information to make this decision at this point in time as we do not know the aetiology of his gastrointestinal bleed. Additionally, given he has experienced major gastrointestinal bleeding, he needs an urgent reversal of anticoagulation.

Stop warfarin and given intravenous vitamin K 3mg is incorrect. This would be the correct option if the INR was > 8 and there was minor bleeding.

Stop warfarin and be given oral vitamin K 3mg is incorrect. This would be the right approach if the INR was > 8 and there was no bleeding.

Stop warfarin for two doses is incorrect. This would be the correct approach if the INR was 5.0-8.0 and there was no bleeding.

Question:

You review a 27-year-old woman in the Emergency Department who has been admitted with an acute exacerbation of her asthma. Which one of the following features is most likely to indicate a life-threatening attack?

A.Failure to improve after nebulised salbutamol 5mg

B.Cannot complete sentences

C.Oxygen saturations of 94% on room air

D.Peak flow of 30% best or predicted

E.Respiratory rate of 42 / min

Answer:Peak flow of 30% best or predicted

Explanation:

Question:

A 23-year-old woman is seen in the dermatology clinic with a 3-month history of an intensely itchy rash over her hands and feet. She has been working as a veterinarian’s assistant for the last 9 months and there is no clear trigger for her symptoms. She finds the itching is exacerbated on hot days, particularly during her holiday to Spain 4 weeks ago. There is no past medical history of note and she has no known allergies. There is a family history of atopic eczema.

On examination, she has sweaty palms. There is a vesicular rash over her plantar and palmar surfaces. The surrounding skin is erythematous.

What is the most likely diagnosis?

A.Allergic contact dermatitis

B.Atopic eczema

C.Hand foot and mouth disease

D.Irritant contact dermatitis

E.Pompholyx

Answer:Pompholyx

Explanation:

Pompholyx eczema is a subtype of eczema characterised by an intensely pruritic rash on the palms and soles

Important for meLess important

This woman has a diagnosis of pompholyx. It is a dermatological condition that is more common in young adults and more often in females compared to males. It is characterised as an itchy vesicular rash over the palms and soles of feet and is associated with sweating. Heat often exacerbating the rash.

Atopic eczema typically presents for the first time in early childhood. It presents as dry, eczematous skin lesions rather than vesicles and bullae seen in pompholyx. In adults, atopic eczema most commonly affects the face and hands, but other sites of the body can be involved. It often follows a relapsing-remitting cycle which is not seen here, making atopic eczema a less likely diagnosis.

Irritant contact dermatitis is secondary to a direct insult to the skin from an irritant. Examples include detergents, garden plants and friction. Whilst irritant contact dermatitis is a possible differential to explain her symptoms, this woman’s rash is also affecting her feet. Irritant contact dermatitis usually only affects the site of contact with the irritant.

Allergic contact dermatitis is an example of a delayed hypersensitivity reaction after exposure to an allergen. Common allergens include nickel, adhesives and fragrances. Like irritant contact dermatitis, it tends to affect the area of skin exposed to the allergen. Although this woman works as a veterinarian’s assistant and contact with animals could be a source of her dermatitis, this woman does not feel relief from her symptoms whilst away from work, making allergic contact dermatitis less likely to be the correct diagnosis.

Hand foot and mouth disease is a viral rash most commonly seen in infants and children. Following a 3-5 day incubation period, a vesicular rash develops over the palms and plantar surfaces on the feet. The rash tends to resolve within 1 week. Given the prolonged history given in this scenario, hand, foot, and mouth disease is incorrect.

Question:

A 58-year-old woman attends clinic after being referred by her GP with a 4-week history of worsening jaundice and pruritus. This is associated with a several month history of weight loss and loss of appetite. The patient denies abdominal pain.

You suspect a likely diagnosis of pancreatic cancer.

Of the following, which can be a feature of this condition?

A.'Double duct' sign

B.Acanthosis nigricans

C.Association with blood group A

D.Necrolytic migratory erythema

E.Raised CA 15-3

Answer:'Double duct' sign

Explanation:

The 'double duct' sign may be seen in pancreatic cancer

Important for meLess important

Pancreatic cancer can present non-specifically and therefore is often diagnosed late. Tumours arising in the head of the pancreas result in obstruction of the common bile and pancreatic ducts, leading to painless jaundice. This also results in the 'double duct' sign seen on imaging (ultrasound, CT, MRI and ERCP) - the presence of dilatation of both the pancreatic and common bile ducts.

Acanthosis nigricans is associated with gastric cancer. Necrolytic migratory erythema is seen characteristically in patients with glucagonoma. Pancreatic cancer is associated with migratory thrombophlebitis.

Raised CA 15-3 is associated with breast cancer. Raised CA 19-9 is seen in pancreatic cancer.

Blood group A is associated with an increased risk of gastric cancer.

Question:

A 38-year-old woman presents with a litany of symptoms that have been ongoing for the past four months. These include weight gain, which particularly bothers her around the abdomen, with troubling purplish stretch marks, thin skin and easy bruising. She has been noticing increased swelling in her ankles and poor mood. In the diagnostic work-up, a range of laboratory tests is taken.

What is the expected electrolyte abnormality in this patient?

A.Hyperkalaemic metabolic acidosis

B.Hyperkalaemic respiratory alkalosis

C.Hypokalaemic metabolic acidosis

D.Hypokalaemic metabolic alkalosis

E.Hypokalaemic respiratory acidosis

Answer:Hypokalaemic metabolic alkalosis

Explanation:

Cushing's syndrome - hypokalaemic metabolic alkalosis

Important for meLess important

This patient has Cushing's syndrome, a disease characterised by cortisol excess. Most commonly, it is related to exogenous glucocorticoid therapy but may also stem from autonomous overproduction by the adrenal glands or increased production of adrenocorticotrophic hormone. Cortisol at high levels can simulate the effects of aldosterone. There is increased sodium and subsequently water retention and increased potassium excretion, resulting in hypokalaemia. Bicarbonate resorption is increased in the tubules with potassium depletion causing metabolic alkalosis. Due to the potassium excretion, there is a hypokalaemic metabolic alkalosis

Hyperkalaemic metabolic acidosis would not be expected, as the effect of cortisol on the mineralocorticoid receptor causes a loss of potassium.

Hyperkalaemic respiratory alkalosis is also not expected, as the effect of cortisol on the mineralocorticoid receptor leads to potassium excretion. Additionally, any acid-base disturbance in Cushing's syndrome is likely to be metabolically mediated rather than respiratory.

Hypokalaemic metabolic acidosis is not expected as the concomitant loss of potassium and reabsorption of bicarbonate causes metabolic alkalosis.

Hypokalaemic respiratory acidosis would not be expected as the acid-base disturbance is related to the reabsorption of bicarbonate. Additionally, any acid-base disturbance in Cushing's syndrome is likely to be metabolically mediated rather than respiratory.

Question:

A 58-year-old woman presents to the GP with vaginal dryness over the last 3 weeks along with small amounts of vaginal bleeding following intercourse. The bleeding has also occasionally happened unprovoked. She denies any pain, dysuria, or bowel habit changes. Her last period was 18 months ago and she has unprotected sexual intercourse with her husband, her only partner. She has a history of type 2 diabetes mellitus and obesity.

Abdominal and pelvic examinations are unremarkable.

What is the most appropriate next step in her management?

A.Measure CA-125

B.Perform sex hormone testing

C.Perform transabdominal ultrasound scan

D.Prescribe vaginal emollients and follow up in 4 weeks

E.Urgent referral to secondary care

Answer:Urgent referral to secondary care

Explanation:

A woman >= 55 years of age presenting with postmenopausal bleeding (i.e. more than 12 months after menstruation has stopped) should be referred using the suspected cancer pathway (within 2 weeks) to exclude endometrial cancer

Important for meLess important

Urgent referral to secondary care is correct. This patient is over 55 years of age and has had postmenopausal (more than 12 months after menstruation as stopped) bleeding (PMB), therefore, she should be referred to secondary care via a 2-week-wait suspected cancer pathway due to endometrial cancer being a potential underlying diagnosis. Although the most common cause of PMB is vaginal atrophy (drying and thinning of the vaginal walls due to reduced oestrogen), endometrial cancer must be ruled out, as they may occur together, as evidenced in this patient as she has noticed post-coital bleeding and bleeding that occurs outside of having sex. This patient requires urgent assessment in secondary care using a transvaginal ultrasound scan and consideration of hysteroscopy with endometrial biopsy. Assuming that the bleeding is due to vaginal dryness alone would be inappropriate as delaying investigations and management can lead to the potential endometrial cancer developing further.

Prescribe vaginal emollients and follow up in 4 weeks is incorrect. This would only be appropriate after an urgent referral to secondary care and investigations to rule out endometrial cancer. Although the most common cause of PMB is vaginal atrophy, endometrial cancer must still be ruled out as the two may occur alongside each other. Treating vaginal atrophy alone would risk the potential endometrial cancer developing further.

Perform transabdominal ultrasound scan is incorrect. The initial investigation of choice for PMB is a transvaginal ultrasound, not transabdominal, as it is more sensitive. This would also most likely be performed in secondary care by trained staff rather than in primary care, as there would be easier access to further investigations such as hysteroscopy.

Perform sex hormone testing is incorrect. Menopause is typically diagnosed clinically in primary care when a woman has not had a period for 12 months, and sex hormone testing is not routinely performed unless this occurs at an earlier age (usually before 40 years). This patient has already gone through menopause as her last period was 18 months, and has had PMB, therefore she should urgently be referred to secondary care due to the possibility of endometrial cancer.

Measure CA-125 is incorrect. Routine screening of CA-125 is not recommended in endometrial cancer as it can be elevated in multiple scenarios such as endometriosis and benign ovarian cysts. It may be used later on if endometrial cancer is diagnosed to monitor for treatment and progression, but is generally not done as an initial screening test. The more appropriate step in her management would be to urgently refer her to secondary care for further assessment.

Question:

A 26-year-old woman attends the emergency department with non-bloody diarrhoea and colicky abdominal pain. She has a suprapubic catheter due to a congenital urinary tract anomaly and has had several admissions for catheter blockages during which she was treated for urinary tract infections and cellulitis around the cystostomy site. She believes the diarrhoea has persisted from her most recent admission, during which it was managed with vancomycin and then fidaxomicin.

Bloods show:

Hb 158 g/L (115 - 160)

Platelets 300 \* 109/L (150 - 400)

WBC 15.6 \* 109/L (4.0 - 11.0)

A stool test confirms the presence of Clostridium difficile toxin.

How should this patient be managed?

A.IV metronidazole

B.IV vancomycin

C.IV vancomycin and IV metronidazole

D.Oral vancomycin and IV fidaxomicin

E.Oral vancomycin and IV metronidazole

Answer:Oral vancomycin and IV metronidazole

Explanation:

If a first episode of C. difficile doesn't respond to either vancomycin or fidaxomicin then oral vancomycin +/- IV metronidazole should be tried

Important for meLess important

This patient has Clostridium difficile which appears to have not responded adequately to oral vancomycin or fidaxomicin. As such, she should be managed with oral vancomycin and IV metronidazole. Her risk factors for developing Clostridium difficile include multiple hospital admissions and multiple antibiotic courses (for her urinary tract infections and cellulitis). Oral vancomycin is the preferred route as the bacteria live within the colonic lumen (without invading the mucosa). IV metronidazole is used concurrently if vancomycin has failed previously as it indicates that the pathogen may be vancomycin-resistant.

IV metronidazole is incorrect - this was used previously in the management of Clostridium difficile, however due to the increased prevalence of metronidazole resistant pathogens, it is no longer used in isolation when managing Clostridium difficile.

IV vancomycin is incorrect. Due to Clostridium difficile living in the colonic lumen and the poor absorption of oral vancomycin through the GI tract, it is most effective to expose the pathogen to a high dose of antibiotic through administering vancomycin orally.

IV vancomycin and IV metronidazole is incorrect due to the incorrect administration route of vancomycin. As highlighted above, oral vancomycin has poor systemic absorption due to the size of the molecule and its pharmacokinetics - which makes it ideal for targeting the pathogen which remains in the colonic lumen.

Oral vancomycin and IV fidaxomicin is incorrect. There is no intravenous preparation of the macrolide antibiotic, fidaxomicin.

Question:

A 23-year-old male presents to you in neurology clinic complaining of excessive daytime somnolence. He describes episodes of sudden onset sleep during the day, and at night often wakes with episodes where he is unable to move his arms or legs and describes seeing figures in the far corner of his bedroom.

Given the likely diagnosis, what is the most appropriate first-line investigation?

A.ECG and echocardiography

B.MRI head

C.Multiple sleep latency EEG

D.Referral to psychiatry for psychiatric assessment

E.24 hour telemetry

Answer:Multiple sleep latency EEG

Explanation:

The investigation of choice for narcolepsy is multiple sleep latency EEG

Important for meLess important

This patient is likely suffering from narcolepsy, which is associated with episodes of sleep paralysis. Here, patients experience episodes of paralysis, sometimes associated with hallucinations (e.g. figures in the corner of the bedroom) upon waking at night.

ECG and echocardiography is not indicated for the diagnosis of narcolepsy.

This patients symptoms are more consistent with narcolepsy over organic pathology, hence and MRI head would not be indicated in this case.

Multiple sleep latency EEG, along with polysomnography are the investigations of choice for narcolepsy.

This patients symptoms are most likely associated with narcolepsy over psychiatric disturbance, hence a psychiatric assessment is not necessary.

24 hour telemetry is typically used to investigate epilepsy over narcolepsy.

Question:

A 70-year-old woman presents to her GP with a swelling in the front of her neck. She has noticed a lump that has become gradually bigger over the last 2 months. She has a past medical history of hypothyroidism, for which she has taken levothyroxine since diagnosis.

On examination, she has a solitary, painless, hard, immobile nodule at the front of her neck. The nodule does not move on tongue protrusion.

What is the most likely cause of the swelling?

A.De Quervain's thyroiditis

B.Papillary thyroid cancer

C.Riedel's thyroiditis

D.Thyroglossal cyst

E.Thyroid lymphoma

Answer:Thyroid lymphoma

Explanation:

Hashimoto's thyroiditis is associated with thyroid lymphoma

Important for meLess important

Thyroid lymphoma is correct. The description of the mass as a solitary, painless, hard, immobile nodule is compatible with a malignancy. The patient has a background of hypothyroidism, the most common cause of which is Hashimoto's thyroiditis. Hashimoto's thyroiditis is associated with the development of thyroid lymphoma.

De Quervain's thyroiditis is incorrect. This would be more likely to produce a transient hyperthyroid state, followed by a hypothyroid state. It commonly occurs secondary to a viral infection, and it would produce a diffuse, tender goitre. This is not seen here.

Papillary thyroid cancer is incorrect. The story here is of a rapidly growing thyroid mass in a patient with likely Hashimoto's thyroiditis. Papillary thyroid cancer is a more slow-growing form of thyroid cancer. Although more common than thyroid lymphoma, it is usually seen in a younger demographic and is not associated with Hashimoto's thyroiditis.

Riedel's thyroiditis is incorrect. This is characterised by inflammation of the thyroid gland, following which normal thyroid tissue is replaced by fibrous tissue. This leaves a hard, woody goitre on palpation. This is not seen here, and so this answer is incorrect.

Thyroglossal cyst is incorrect. Although the description of a solitary lesion would match this, the lesion may be described as cystic/mobile. It would also move upwards on tongue protrusion, but the lesion described in this case is immobile and does not move on tongue protrusion.

Question:

A 72-year-old woman presents with a 2-day history of colicky abdominal pain and a 24-hour history of vomiting. Her past medical history includes hypertension, glaucoma, hysterectomy (20 years ago). On examination her abdomen is distended with tinkling bowel sounds.

What is the most likely diagnosis?

A.Large bowel obstruction

B.Acute diverticulitis

C.Small bowel obstruction

D.Ruptured abdominal aortic aneurysm

E.Haemorrhagic pancreatitis

Answer:Small bowel obstruction

Explanation:

Given the history of previous intra-abdominal surgery; the most likely diagnosis would be small bowel obstruction secondary to adhesions. Typically patients with small bowel present with vomiting early and absolute constipation late. Management would be with IV fluids (drip) and nasogastric tube (suck). Investigations such as abdominal x-ray (?dilated bowel loops) and erect chest x-ray (?pneumoperitoneum) would need to be performed. If the patient is not clinically improving with conservative management they will likely need a CT scan to determine the level and nature of obstruction and close liaison with the surgical team.

Question:

A 1-year-old child is brought into your surgery for a routine examination. His parents are worried that he is too small for his age. On further questioning his parents explain he is difficult to feed, and eats a milk and soft food based diet. He is otherwise asymptomatic.

On general examination he looks healthy but is on the 3rd centile for weight. Cardiac examination reveals a systolic murmur in the pulmonary area and a fixed splitting to the second heart sound. Pulses are all palpable and within normal range

What is the most likely diagnosis?

A.Atrial septal defect

B.Ventricular septal defect

C.Coarctation of the aorta

D.Patent ductus arteriosus

E.Pulmonary stenosis

Answer:Atrial septal defect

Explanation:

The majority of atrial septal defects (ASDs) are asymptomatic in children. If these congenital hearts defects are not picked up prenatally then symptomatic patients with severe ASD may experience shortness of breath, lethargy, poor appetite and growth and increased susceptibility to respiratory infections. On examination you would typically hear a ejection systolic murmur and fixed splitting of the second heart sound.

Murmurs in other congenital heart defects are as follows:

Defect Findings

Ventricular septal defect Pansystolic murmur in lower left sternal border

Coarctation of the aorta Crescendo-decrescendo murmur in the upper left sternal border

Patent ductus arteriosus Diastolic machinery murmur in the upper left sternal border

Pulmonary stenosis Ejection systolic murmur in the upper left sternal border

Question:

A 25-year-old woman presents for review. She has a history of depression and is currently prescribed citalopram. Despite returning from a recent holiday in Spain she complains of feeling tired all the time. On examination you notice a slightly raised red rash on the bridge of her nose and cheeks. Although she complains of having 'stiff joints' you can find no evidence of arthritis. You order some basic blood tests:

Hb 12.7 g/dl

Platelets 130 \* 109/l

WBC 3.3 \* 109/l

Na+ 138 mmol/l

K+ 4.0 mmol/l

Urea 3.4 mmol/l

Creatinine 77 µmol/l

Free T4 12.2 pmol/l

TSH 1.25 mu/l

CRP 9 mg/l

What is the most likely diagnosis?

A.Systemic lupus erythematosus

B.Acne rosacea

C.Fibromyalgia

D.Lyme Disease

E.HIV seroconversion illness

Answer:Systemic lupus erythematosus

Explanation:

The malar rash, arthralgia, lethargy and history of mental health points towards a diagnosis of SLE. Remember that the CRP (in contrast to the ESR) is typically normal in SLE.

Question:

At what age would the average child acquire the ability to crawl?

A.6 months

B.9 months

C.12 months

D.18 months

E.2 years

Answer:9 months

Explanation:

Question:

A 27-year-old female presents to her GP as she missed her desogestrel contraceptive pill (progestogen only) this morning and is unsure what to do. She normally takes the pill at around 0900 and it is now 1430. What advice should be given?

A.Emergency contraception should be offered

B.Perform a pregnancy test

C.Take missed pill as soon as possible and omit pill break at end of pack

D.Take missed pill now and no further action needed

E.Take missed pill now and advise condom use until pill taking re-established for 48 hours

Answer:Take missed pill now and no further action needed

Explanation:

As desogestrel has a 12-hour window this patient should take the pill now with no further action being needed

Question:

A 51-year-old female presents to the Emergency Department following an episode of transient right sided weakness lasting 10-15 minutes. Examination reveals the patient to be in atrial fibrillation. If the patient remains in chronic atrial fibrillation what is the most suitable form of anticoagulation?

A.Aspirin

B.Direct oral anticoagulant

C.Warfarin

D.Aspirin + direct oral anticoagulant

E.Clopidogrel

Answer:Direct oral anticoagulant

Explanation:

DOACs should be offered first-line for reducing stroke risk in AF

Important for meLess important

The CHA2DS2-VASc for this patient is 3 - 2 for the transient ischaemic attack and 1 for being female. She should therefore be offered anticoagulation with direct oral anticoagulant.

Question:

A six-week-old infant is brought into the emergency department with a history of poor feeding for 4 days and increasing difficulty in breathing. There is no significant medical history. On examination the infant has a blue tinge to the lips and a ejection systolic murmur on auscultation of the precordium.

What is the most likely underlying diagnosis?

A.Coarctation of the aorta

B.Patent ductus arteriosus

C.Transposition of the great arteries

D.Tetralogy of fallot

E.Ventricular septal defect

Answer:Tetralogy of fallot

Explanation:

Cyanotic congenital heart disease presenting within the first days of life is TGA.

Cyanotic congenital heart disease presenting at 1-2 months of age is TOF

Important for meLess important

The infant has signs of decompensated heart disease with cyanosis, which rules out ventricular septal defect (VSD), coarctation and patent ductus arteriosus (PDA) . This leaves you with the options of tetralogy of fallot(TOF) or transposition of the great arteries(TGA).

The clue to distinguish between the two is that TGA occurs early after birth as it is duct dependent whereas TOF occurs around 1-2 months as the VSD is left to right until the RV hypertrophy increases sufficiently to overcome left ventricular pressures (causing a right to left shunt). The components of TOF are:

VSD

Right ventricular hypertrophy

Right ventricular outflow obstruction (pulmonary stenosis) – responsible for the ESM heard

Overriding aorta

The classical chest x-ray findings include a “boot-shaped” heart; the ECG shows RVH.

Definitive mx is through surgical repair (around 6-months of age) and cyanotic spells are managed with b-blockers (to reduce infundibular spasm and thus prevent worsening of RV outflow obstruction).

Question:

A 65-year-old woman has uncontrolled diabetes despite lifestyle changes and treatment with metformin. Her body mass index is 32 kg/m2. Her GP commences treatment with sitagliptin.

What is the main mechanism of action of this drug?

A.Increases pancreatic insulin secretion

B.Increases peripheral insulin sensitivity

C.Reduces hepatic gluconeogenesis

D.Reduces the peripheral breakdown of incretins

E.Reduces the release of glucagon

Answer:Reduces the peripheral breakdown of incretins

Explanation:

Gliptins (DPP-4 inhibitors) reduce the peripheral breakdown of incretins such as GLP-1

Important for meLess important

The correct answer is that sitagliptin reduces the peripheral break down of incretins. Sitagliptin is one of the Gliptins (DPP-4 inhibitors) which reduce the peripheral breakdown of incretins such as GLP-1.

Metformin increases peripheral insulin sensitivity and reduces hepatic gluconeogenesis.

Sulfonylureas augment pancreatic insulin secretion. Increased insulin secretion can lead to hypoglycaemia.

GLP mimetics, e.g. exenatide, augment pancreatic insulin secretion, suppress glucagon release, slow gastric emptying and promote satiety.

Question:

A 25-year-old male comes in with increasing weakness and lethargy over the past year. He also complains that he is impotent with his new girlfriend. The patient never experienced symptoms like this before. A blood test shows elevated ferritin levels.

He is commenced on a management plan which includes regular phlebotomies.

Which of the following is most useful in monitoring response to treatment in this patient?

A.Ferritin and serum transferrin

B.Ferritin and transferrin saturation

C.Serum iron and ferritin

D.Serum iron and serum transferrin

E.Serum iron and transferrin saturations

Answer:Ferritin and transferrin saturation

Explanation:

Ferritin and transferrin saturation are used to monitor treatment in haemochromatosis

Important for meLess important

The most useful combination of iron tests to monitor treatment in haemochromatosis from the options are ferritin and transferrin saturation. Both of these tests can track response to treatment; ferritin is a measure of total iron stores, and transferrin saturation also measures how much serum iron is bound to proteins in the blood.

Serum transferrin is not useful in monitoring response to treatment in haemochromatosis. Serum transferrin, otherwise known as total iron-binding capacity is low in haemochromatosis. Thus, although ferritin is useful, ferritin and serum transferrin are not the two most useful tests.

Similarly, serum iron fluctuates throughout the day and is based on diet. Furthermore, it is likely to fluctuate significantly with regular phlebotomies. Thus, although ferritin is useful, serum iron is not reliable in the monitoring of the progression of haemochromatosis over time; and thus, these two tests are not the most appropriate.

In the same way, as serum iron and serum transferring are both not useful in monitoring haemochromatosis, using these two tests would not provide any insight into treatment monitoring.

Lastly, although transferrin saturations are useful for monitoring treatment, serum iron is not, and therefore, using these two tests would not be the most appropriate and useful combination.

Question:

You see a 6 week-old baby boy for his routine baby check and note a small, soft, umbilical hernia on examination. What should you do?

A.Advise parents to tape a coin over the area

B.Refer for surgery

C.Refer for ultrasound

D.Watch and wait

E.Arrange emergency admission

Answer:Watch and wait

Explanation:

Small umbilical hernias are common in babies and tend to resolve by 12 months of age. Parents should be reassured no treatment is usually required but to be aware of the signs of obstruction or strangulation such as vomiting, pain and being unable to push the hernia in - this is rare in infants. Advise the parents to present the child at around 2 years of age if the hernia is still present to arrange referral to a surgeon. Attempts to treat the hernia by strapping or taping things over the area are not helpful and can irritate the skin.

Source: NHS Choices

http://www.nhs.uk/conditions/Umbilicalhernia/Pages/Whatisitpage.aspx

Question:

A 56-year-old man is reviewed in clinic regarding treatment for his condition characterised by episodic central, crushing chest pain when walking his dog, which self-resolves with rest. The patient has a history of hypercholesterolaemia and asthma.

He was previously commenced on aspirin, a statin, verapamil, and sublingual glyceryl trinitrate, however, his symptoms are still ongoing.

His observations are normal and an ECG shows sinus rhythm.

What is the most appropriate medication to prescribe to this patient to prevent further episodes?

A.Amlodipine

B.Atenolol

C.Clopidogrel

D.Ivabradine

E.Ramipril

Answer:Ivabradine

Explanation:

For a patient with symptomatic stable angina on a calcium channel blocker but with a contraindication to a beta-blocker, the next line treatment should be long-acting nitrate, ivabradine, nicorandil or ranolazine

Important for meLess important

This patient is presenting for a second time with symptoms consistent with stable angina. Typically this presents as central, dull, aching chest pain that occurs with exertion. This man also has a risk factor in his past medical history of hypercholesterolemia. The first-line step in preventing anginal episodes is the use of beta-blockers or calcium channel blockers (CCBs). Since this patient has asthma, beta-blockers are contraindicated. As well as this, NICE recommend that if a CCB is to be used as monotherapy, it should be a rate-limiting one, such as verapamil, which is the case here. Despite being given verapamil, this patient is still experiencing episodes, therefore, further medication should be tried.

Ivabradine is correct. Since this patient's treatment with a rate-limiting CCB (verapamil) is ineffective, and beta-blockers are contraindicated and cannot be co-prescribed with rate-limiting CCBs (due to the risk of severe heart block), the most appropriate next step in the options listed would be to try either a long-acting nitrate, ivabradine, nicorandil or ranolazine. From the options listed, ivabradine is the available option.

Amlodipine is incorrect. Although CCBs are used in the management of stable angina, if used as monotherapy, rate-limiting CCBs (such as verapamil) are preferred. This patient is already taking verapamil, therefore, adding another CCB would unlikely be helpful.

Atenolol is incorrect as this patient has asthma, contraindicating the use of beta-blockers such as atenolol. This patient is also taking verapamil (a rate-limiting CCB), so even if he did not have asthma, beta-blockers would still be contraindicated as they should not be co-prescribed due to the risk of severe heart block, bradycardia, and heart failure.

Clopidogrel is incorrect. This is a P2Y12 inhibitor which has no role in the management of stable angina or the prevention of its episodes. Dual antiplatelet therapy is used in the treatment of acute myocardial infarction, whereas this man has stable angina.

Ramipril is incorrect. This is an ACE inhibitor which is used for hypertension management in patients less than 55 years old, or with diabetes. The treatment summaries for stable angina mention that an ACE inhibitor should be considered for patients with stable angina, especially if they have diabetes. However, this patient does not have diabetes and this forms part of the secondary prevention. The question is asking for active management of stable angina (the next line therapy), therefore either a long-acting nitrate, ivabradine, nicorandil, or ranolazine is a correct answer to prevent further attacks.

Question:

A 36-year-old with a long standing history of schizophrenia presents to the emergency department in status epilepticus. Once he is treated, he tells the doctor he has been having a lot of seizures recently.

Which of the following medications is most likely to be causing the seizures?

A.Clozapine

B.Diazepam

C.Fluoxetine

D.Haloperidol

E.Olanzapine

Answer:Clozapine

Explanation:

Clozapine reduces seizure threshold, making seizures more likely

Important for meLess important

Clozapine is an atypical antipsychotic used for treatment resistant schizophrenia. It has many side-effects, one of which is that it reduces the seizure threshold, which is most likely to be causing the seizures described in the question. Olanzapine is another atypical antipsychotic, and haloperidol is a typical antipsychotic, but neither are associated with reduced seizure threshold. Fluoxetine is an SSRI, and diazepam is a benzodiazepine, and is actually used to treat seizures.

Question:

A 23-year-old woman gives birth to a baby boy. She has a complex past medical history of bipolar disorder, epilepsy and anti-phospholipid syndrome. She is also taking codeine and naproxen frequently for chronic back pain following a car accident. When preparing her discharge letter, she informs you that she intends to breastfeed her baby.

Out of her regular medications below, which is the only drug that can be continued whilst breastfeeding?

A.Aspirin

B.Codeine

C.Lamotrigine

D.Lithium

E.Naproxen

Answer:Lamotrigine

Explanation:

Breast feeding is acceptable with nearly all anti-epileptic drugs

Important for meLess important

Lamotrigine is the correct answer. Nearly all anti-epileptic drugs are considered safe for use in breastfeeding - however, breastfed infants should be monitored for apnoea, lethargy and poor weight gain.

Aspirin is incorrect. Aspirin is found in breast milk, conveying risk of metabolic acidosis and Reye's syndrome to infants.

Codeine is incorrect. Codeine is excreted in breast milk and hence should be avoided when breastfeeding.

Lithium is incorrect. Evidence shows lithium is transferred to neonates in breast milk and can potentially cause renal and thyroid dysfunction. The guidance is generally to avoid where possible when breastfeeding.

Naproxen is demonstrated to be present in breast milk, more readily than other NSAIDs. Although there is generally inconclusive evidence, there are several case reports of increased risk of bleeding and thrombocytopaenia linked to naproxen in breast milk. Alternative NSAIDs such as ibuprofen are therefore recommended in breastfeeding patients.

Question:

Mr John is a 50-year-old man who presents to his general practitioner (GP) with a 1-week history of frank haematuria. He also complains of a persistent dry cough and dyspnoea that has been present for 3 months, as well as a long-standing history of sinusitis and nosebleeds.

On examination the patient has a saddle shaped nasal deformity and on auscultation bilateral crepitations can be heard.

Based on this clinical scenario what what antibody is most specifically associated with this patients condition?

A.Anti-glomerular basement membrane antibody (anti-GBM)

B.Antimitochondrial antibody (AMA)

C.Antinuclear antibody (ANA)

D.Cytoplasmic antineutrophil cytoplasmic antibodies (cANCA)

E.Perinuclear antineutrophil cytoplasmic antibodies (pANCA)

Answer:Cytoplasmic antineutrophil cytoplasmic antibodies (cANCA)

Explanation:

cANCA = granulomatosis with polyangiitis; pANCA = eosinophilic granulomatosis with polyangiitis + others

Important for meLess important

This patient's clinical scenario suggests a diagnosis of granulomatosis with polyangiitis. The most specific test to confirm this diagnosis is cANCA levels.

ANA is an antibody seen in conditions such as systemic lupus erythematous (SLE), systemic sclerosis, autoimmune hepatitis and Sjogren's syndrome.

AMA levels are raised in conditions such as primary biliary cholangitis, autoimmune hepatitis and idiopathic cirrhosis.

anti-GBM levels are high in Goodpasture's disease.

pANCA is more specific to other vasculitis such as eosinophilic granulomatosis with polyangiitis, microscopic polyangiitis and Goodpasture's disease.

(Oxford Handbook of Clinical Medicine 10th edition).

Question:

A 68-year-old man presents to the emergency department with severe chest pain. The pain started two hours prior and he describes it as central in location. It radiates down his left arm and has not been improved by his glyceryl trinitrate (GTN) spray. He has a history of stable angina, does not drink, but has a 22-pack-year smoking history.

Electrocardiogram (ECG) demonstrates ST-segment depression in leads I, aVL, V5 and V6. Point-of-care troponin is elevated.

The patient is treated with aspirin and ticagrelor, and the decision is made to not attempt percutaneous coronary intervention (PCI).

What further immediate treatment is most appropriate?

A.Fondaparinux

B.Oxygen

C.Paracetamol

D.Prasugrel

E.Ramipril

Answer:Fondaparinux

Explanation:

NSTEMI management: fondaparinux should be given in addition to aspirin to all patients unless high bleeding risk

Important for meLess important

Fondaparinux is correct. As well as dual antiplatelet therapy, fondaparinux should be offered to non-ST-elevation myocardial infarction (NSTEMI) patients who are not at a high risk of bleeding and who are not having angiography immediately.

Oxygen is incorrect. Oxygen should only be given if the patient has oxygen saturations < 94% in keeping with British Thoracic Society oxygen therapy guidelines.

Paracetamol is incorrect. GTN ± morphine is used for treatment of chest pain in acute coronary syndrome (ACS), not paracetamol.

Prasugrel is an antiplatelet that is used as part of dual-antiplatelet therapy when patients are to undergo PCI. This patient is already on two antiplatelets, and is not for PCI. Hence, this is incorrect.

Ramipril is incorrect. Although ramipril confers benefit in the long-term treatment of heart failure, there is no acute indication during ACS.

Question:

A 43-year-old woman on a general medical ward presents with lethargy, memory impairment, poor concentration, and paraesthesia of her arms, hands, and feet. A blood film reveals hypersegmented polymorphs. Her other blood results are included below.

She has no significant past medical history and lives with her husband. She eats a varied diet including meat and fish.

Hb 111 g/L Male: (135-180)

Female: (115 - 160)

MCV 110 \* 1015/L (80 -100)

Platelets 157 \* 109/L (150 - 400)

WBC 3.4 \* 109/L (4.0 - 11.0)

Na+ 136 mmol/L (135 - 145)

K+ 3.7 mmol/L (3.5 - 5.0)

Urea 3.4 mmol/L (2.0 - 7.0)

Creatinine 96 µmol/L (55 - 120)

CRP <5 mg/L (< 5)

Given the likely diagnosis, what single test would be most specific for investigation?

A.Anti-Ro antibodies

B.Anti-TSH antibodies

C.Gastric parietal cell antibodies

D.Intrinsic factor antibodies

E.Thyroid peroxidase antibodies

Answer:Intrinsic factor antibodies

Explanation:

Intrinsic factor antibodies are more useful than gastric parietal cell antibodies when investigating vitamin B12 deficiency, given low specificity of gastric parietal cell antibodies

Important for meLess important

Intrinsic factor antibodies are far more specific for the investigation of vitamin B12 deficiency. Note here although macrocytic anaemia is present, hypersegmented polymorphs are an early sign of megaloblastic anaemia. Of the tests listed only gastric parietal cell and intrinsic factor antibodies test for a cause of megaloblastic anaemia eg. Vitamin B12 deficiency.

Anti-Ro antibodies are associated with systemic lupus erythematosus (SLE), Sjogren's and other rheumatological conditions. They are not associated with vitamin B12 deficiency.

Anti-TSH antibodies are associated with Graves' disease whilst thyroid peroxidase (TPO) antibodies are associated with both Graves' and Hashimoto's disease. Although the symptoms of this patient could represent a thyroid pathology, the blood film results point away from this. Thyroid disease would likely result in macrocytic anaemia, but would not account for the hypersegmented polymorphs seen.

Gastric parietal cell antibodies are non-specific for investigating vitamin B12 deficiency, the likely diagnosis here. Gastric parietal cell antibodies are therefore incorrect as they are not most specific.

Thyroid peroxidase antibodies are associated with both Graves and Hashimoto's disease, and would not account for the hypersegmented polymorphs seen on the blood film.

Vitamin B12 is found in meat and fish products, but not found in plants. Dietary B12 deficiency may be seen in vegans or those with gastrointestinal malabsorption.

Question:

A male infant is born prematurely at 34 weeks gestation by emergency cesarean section. He initially appears to be stable. However, over the ensuing 24 hours he develops worsening neurological function. Which of the following processes is most likely to have occurred?

A.Extra dural haemorrhage

B.Sub dural haemorrhage

C.Sub arachnoid haemorrhage

D.Intraventricular haemorrhage

E.Arteriovenous malformation

Answer:Intraventricular haemorrhage

Explanation:

Question:

A 36-year-old woman has delivered her second child at 38 weeks gestation. She had a physiological third stage of labour without drugs. Five minutes after delivery she has a sudden gush of approximately 750 mL of blood. Her vital signs are stable. How should she be initially managed?

A.Syntometrine

B.Blood transfusion

C.Examination under anaesthetic

D.Increase breastfeeding to stimulate uterine contractions

E.Expectant management

Answer:Syntometrine

Explanation:

Medical treatments for postpartum haemorrhage secondary to uterine atony include oxytocin, ergometrine, carboprost and misoprostol

Important for meLess important

An atonic uterus is far the most likely cause of primary post-partum haemorrhage. Due to the degree of blood loss this woman should be advised to have Syntometrine or oxytocin to contract her uterus. In addition, clinicians should perform cord traction during the third stage of labour and massage the uterus after delivery of the placenta. If this does not work then other measures may be required such as blood transfusion and manual removal of the placenta. Although breastfeeding will cause uterine contractions, the blood loss is too great in this case to justify this answer.

Question:

A 42-year-old male presents to her general practitioner with a 2-week history of asymmetrical oligoarthritis predominantly affecting his lower extremities, associated with dysuria and conjunctivitis. He is usually well apart from suffering from a diarrhoeal illness 1 month ago.

What is the most appropriate first-line management of this patient?

A.Intra-articular glucocorticoids

B.Methotrexate

C.NSAIDs

D.Oral glucocorticoids

E.Paracetamol

Answer:NSAIDs

Explanation:

Acute reactive arthritis can be treated with NSAIDs, as long as there are no contraindications

Important for meLess important

The correct answer is NSAIDs.

This patient has presented with an asymmetrical oligoarthritis associated with dysuria (urethritis) and conjunctivitis, which is preceded by a diarrhoeal illness. This is a classical presentation of reactive arthritis (previously known as Reiter's syndrome). This condition results after exposure to certain gastrointestinal and genitourinary infections. The most commonly implicated bacteria are chlamydia, salmonella and Campylobacter jejuni. As there are no contra-indications, the first-management of this patient should be with NSAIDs.

Intra-articular glucocorticoids are incorrect. This may be considered in cases of reactive arthritis limited to a small number of joints which is resistant to NSAID management.

Methotrexate is incorrect. This may be considered in cases of chronic reactive arthritis refractory to management with both NSAIDs and glucocorticoids.

Oral glucocorticoids are incorrect, although this may be considered if management with NSAIDs fails to control the patient's symptoms.

Paracetamol is incorrect. This will do little to reduce joint inflammation and will, therefore, only provide short-term analgesia, so it is not the best option.

Question:

A 52-year-old female presents to the general practitioner with a rash over the left nipple. She is otherwise well with no past medical or family history of note. Examination identifies an erythematous rash of the left nipple with associated thickening. There are no associated changes to the areola. No mass can be palpated within the breast or axillary tail and the right breast is unremarkable.

What is the most appropriate management of this patient?

A.Routine referral to breast clinic

B.Topical corticosteroids and emollients

C.Topical emollients

D.Topical tacrolimus

E.Urgent referral to breast clinic

Answer:Urgent referral to breast clinic

Explanation:

Reddening and thickening of nipple and areola → think Paget's disease of the breast

Important for meLess important

The correct answer is urgent referral to breast clinic. This patient is presenting with features of Paget's disease of the nipple. This may present in a similar manner to nipple eczema, but the key differentiating feature is nipple eczema starts in the areola and spreads to the nipple, whereas Paget's disease starts at the nipple and spreads to the areola only in the later stages. Regardless of whether a mass can be felt, Paget's disease of the nipple is strongly suggestive of breast cancer and therefore requires an urgent referral to the breast clinic.

Routine referral to breast clinic is incorrect as Paget's disease of the nipple is strongly suggestive of breast cancer and therefore requires an urgent referral.

Topical corticosteroids and emollients is incorrect, this may be used in the management of moderate nipple eczema.

Topical emollients is incorrect, this may be used in the management of mild nipple eczema.

Topical tacrolimus is incorrect, this may be used in the management of nipple eczema refractory to standard therapy.

Question:

A 32-year-old woman is on the antenatal ward having given birth 4 hours ago. She had an antepartum haemorrhage and lost roughly 1200ml of blood during labour. She was feeling very week when she arrived on the antenatal ward so some blood was taken to test for anaemia, and the results are as follows:

Hb 66 g/L Male: (135-180)

Female: (115 - 160)

Platelets 302 \* 109/L (150 - 400)

WBC 9.4 \* 109/L (4.0 - 11.0)

There is no past medical history of note, no regular medications, and no history of previous blood transfusion.

Should this patient receive a transfusion of packed red blood cells, and what is the transfusion threshold for this patient?

A.No - transfusion threshold is 50 g/L

B.No - transfusion threshold is 65 g/L

C.Yes - transfusion threshold is 70 g/L

D.Yes - transfusion threshold is 80 g/L

E.Yes - transfusion threshold is 100 g/L

Answer:Yes - transfusion threshold is 70 g/L

Explanation:

The transfusion threshold for patients without ACS is 70 g/L

Important for meLess important

2015 NICE guidance states that the transfusion threshold for packed red blood cell transfusions for patients without acute coronary syndrome is 70 g/L. This patient should receive a transfusion as her Hb is 66 g/L.

50 g/L is not the correct transfusion threshold. A patient with Hb below 50 g/L would be very unwell and would definitely need a transfusion, but the threshold is higher than this.

65 g/L is not the correct transfusion threshold. Again, a patient with a Hb below 65 g/L would need a transfusion, but the threshold is slightly higher than this.

80 g/L is not the correct transfusion threshold in this patient, although it is the correct threshold in patients with acute coronary syndrome.

100 g/L is not the correct transfusion threshold. Although 100 g/L is below the normal range for Hb, this level does not indicate the need for a transfusion and would be managed conservatively.

Question:

A 67-year-old man is seen in the pain clinic with 6 months of episodic facial pain described as sharp, shooting, and electric-shock-like on the right side. He notices it occurring when combing his hair.

He has a past medical history of type 2 diabetes mellitus and takes metformin and sitagliptin. His last HbA1c was 60 mmol/mol and he has no family history.

A neurological examination demonstrates no other sensory changes including hearing and vision.

Given the likely diagnosis, what treatment is most appropriate?

A.Amitriptyline

B.Carbamazepine

C.Carbimazole

D.Duloxetine

E.Gabapentin

Answer:Carbamazepine

Explanation:

Trigeminal neuralgia - carbamazepine is first-line

Important for meLess important

Unilateral electric shock-like pains in the face triggered by light touch (such as combing hair or washing) suggest trigeminal neuralgia. The absence of other sensory changes including problems with hearing and vision makes other diagnoses (such as multiple sclerosis) less likely.

Carbamazepine is correct as this is the first-line option in managing trigeminal neuralgia, as high-quality evidence supports its efficacy.

Amitriptyline, duloxetine, and gabapentin are incorrect. These drugs do not play a role in the management of trigeminal neuralgia and are instead used in neuropathic pain secondary to conditions such as diabetic neuropathy. Although this patient's HbA1c is elevated despite taking two anti-diabetic medications, diabetic neuropathy tends to affect the feet first as the distance for blood to travel to supply them is higher than that of the face.

Carbimazole is incorrect as this is an antithyroid drug used in the management of Graves' disease and does not play a role in the management of trigeminal neuralgia.

Question:

A 68-year-old woman has recently had blood tests arranged by her GP as part of her annual medication review. She has a history of hypothyroidism, type 2 diabetes, hypertension and osteopaenia. She takes levothyroxine, metformin, ramipril and calcium and vitamin D supplements.

Her blood tests show the following:

Thyroid-stimulating hormone (TSH) 7.8 mU/L (0.5-5.5)

Free thyroxine (T4) 8.9 pmol/L (9.0 - 18)

On further questioning, she reports that she normally takes her levothyroxine on an empty stomach at 8 am every morning, followed by her other regular medications at 8.30 am. She denies any recently missed doses.

What advice should be given regarding her medication timings in order to improve her thyroid status?

A.Take levothyroxine with a glass of orange juice

B.Take levothyroxine with breakfast

C.Take levothyroxine at least 1 hour before all other medications

D.Take calcium supplement at least 4 hours after levothyroxine

E.Take metformin at least 4 hours after levothyroxine

Answer:Take calcium supplement at least 4 hours after levothyroxine

Explanation:

Iron / calcium carbonate tablets can reduce the absorption of levothyroxine - should be given 4 hours apart

Important for meLess important

This woman has borderline hypothyroid results from her blood tests, with a raised TSH and slightly low free T4. Before the decision to increase her levothyroxine dose is made, it is good practice to ensure that she is taking her current dose properly. While the standard advice is to take it at least 30 minutes before breakfast, caffeine-containing liquids or other medication, it is known that certain medications can directly reduce the absorption of levothyroxine and hence the spacing interval needs to be extended. Calcium carbonate is known to be one of these medications and the British National Formulary advises separate administration by at least 4 hours.

Taking levothyroxine with orange juice is incorrect, as this does not improve levothyroxine absorption. Orange juice is sometimes recommended to be taken alongside iron supplements, as vitamin C is known to promote iron absorption.

Taking levothyroxine with breakfast is incorrect as this would have the opposite effect and would likely reduce levothyroxine absorption further. Medications that should be taken with food include non-steroidal anti-inflammatory drugs.

Taking levothyroxine at least 1 hour before all other medications is good advice in general, but would not be the appropriate advice in cases where there is a known drug interaction (i.e. calcium supplements). Other drugs that require a minimum of 4-hour dose separation with levothyroxine include antacids and iron.

Taking metformin at least 4 hours after levothyroxine is incorrect as this would not have any noticeable benefit on levothyroxine absorption. Patients who are treated with levothyroxine may experience higher glucose levels and need adjustment of their antidiabetic drugs.

Question:

A 47-year-old woman presents with hot flushes and night sweats with irregular periods. She has had 2 children in the past, with no complications, and has had an intrauterine system (Mirena coil) in situ for the last 5 years. She is quite keen to consider hormone replacement therapy (HRT). She reports her mother suffered from a deep vein thrombosis (DVT) in her 40s.

What would be the most appropriate option based on her history?

A.Combined oral HRT

B.Combined transdermal HRT

C.HRT is contraindicated

D.Oral oestrogen

E.Transdermal oestrogen

Answer:Combined transdermal HRT

Explanation:

Transdermal HRT should be used in women at risk of venous thromboembolism

Important for meLess important

You would offer a combined transdermal HRT, as transdermal HRT has no increased risk of development of DVT compared to oral preparations. She has a Mirena coil, suggesting she has a uterus, so requires a progesterone component. Mirena is licensed for use in HRT as the progesterone component, but only for 4 years (versus 5 years as contraception). Therefore, the patient's Mirena is not licensed for use in HRT as she has had it for 5 years now. She requires combined HRT until the Mirena is replaced and then she can switch to an oestrogen-only transdermal preparation.

You would not offer combined oral HRT or oral oestrogen as oral HRT preparations have a risk of causing DVT. Transdermal preparations do not have the same risk.

HRT is not contraindicated here.

You would not offer transdermal oestrogen as, although transdermal HRT preparations have no increased risk of DVT, the patient requires HRT with combined oestrogen and progesterone as explained above, due to her Mirena being 5 years old.

Question:

A 17-year-old female calls her GP surgery as she is worried that she forgot to take her combined oral contraceptive pill yesterday. She is currently in the second week of the packet and had unprotected sex last night.

The patient has called you first thing in the morning - she usually takes the pill around this time but hasn't yet taken today's as she wasn't sure what to do.

What advice should this patient be given regarding the missed pill?

A.Take emergency contraception and continue with today's pill only

B.Take two pills today and omit the pill-free interval at the end of this packet,

C.Take two pills today, emergency contraception required

D.Take two pills today, no further precautions needed

E.Take two pills today, use barrier contraception for the next seven days,

Answer:Take two pills today, no further precautions needed

Explanation:

COCP: if 1 pill is missed, take the last pill ASAP but no further action is needed

Important for meLess important

The correct answer is that she should take two pills today, no further precautions are needed. This is because she has only omitted one pill. The next pill should be taken as soon as possible, even if that means taking two pills at once.

As only one pill was missed, and she is in her second week of continuous pill-taking, emergency contraception is not required and therefore answers including this are not correct.

Omitting the pill-free interval is advised if 2 or more pills are missed in week 3 of a packet. Emergency contraception is not advised as only one pill was missed, as above.

Although she should take two pills today, as stated there is no need for emergency contraception if only a single pill was missed.

Barrier contraception for 7 days is advised if two or more pills are omitted and is not required in this case.

Question:

A 40-year-old female presents to the outpatient department reporting difficulty in swallowing solids. She has noticed over the past year progressive limitation of her mouth opening and tightening of the skin over her distal forearms.

On examination, her fingers appear to be blanched and cold along with a 'salt and pepper' appearance of the skin. You suspect a diagnosis of a connective tissue disorder.

Which of the following investigation will help in establishing the definitive diagnosis?

A.Anti-centromere antibodies

B.Anti-ds-DNA antibodies

C.Anti-nuclear antibodies

D.Rheumatoid factor

E.Anti-Scl-70 antibodies

Answer:Anti-centromere antibodies

Explanation:

Limited (central) systemic sclerosis = anti-centromere antibodies

Important for meLess important

This patient's clinical presentation is consistent with the diagnosis of scleroderma, a mixed connective tissue disorder. It is characterised by hardened skin and sclerotic changes in the connective tissues. In this case, the patient has the involvement of skin of the face and distal forearm only, along with dysphagia. On examination, Raynaud phenomena is observed. All these features point to limited scleroderma. Therefore, the diagnostic test of choice is anti-centromere antibodies.

Anti-ds-DNA is diagnostic for systemic lupus erythematosus (SLE).

Anti-nuclear antibodies are positive in 90% of cases but are non-specific. They are positive in conditions other than scleroderma such as SLE.

Rheumatoid factor is positive in 30% of cases and is non-diagnostic.

Anti-Scl-70 antibodies are specific for diffuse scleroderma.

Question:

A 48-year-old man presents to his general practitioner with mild dyspnoea. He has a background of a metastatic carcinoid tumour and takes octreotide. He does not smoke or drink alcohol.

On examination, there is an ejection systolic murmur heard loudest in inspiration. Chest auscultation is normal, the jugular venous pulse is not elevated and there is no peripheral oedema.

What is the most likely diagnosis of the options listed?

A.Aortic stenosis

B.Mitral stenosis

C.Mitral valve prolapse

D.Pulmonary stenosis

E.Tricuspid stenosis

Answer:Pulmonary stenosis

Explanation:

Pulmonary stenosis is louder on inspiration

Important for meLess important

Pulmonary stenosis is the correct answer. This valvular lesion is mostly congenital. However, in rare cases, it is associated with malignant carcinoid. It is an ejection systolic murmur, heard loudest in inspiration. It is associated with dyspnoea.

Mitral stenosis is incorrect. This is a mid-late diastolic murmur heard loudest in expiration. Left-sided valvular lesions are rare in carcinoid.

Mitral valve prolapse is incorrect. This is a mid-systolic murmur heard loudest in expiration.

Tricuspid stenosis is incorrect. This is also associated with carcinoid but this is a mid/late diastolic murmur heard loudest in inspiration.

Aortic stenosis is incorrect. This is an ejection systolic murmur heard loudest in expiration.

Question:

A 75-year-old gentleman presents to the emergency department with lower gastrointestinal bleeding. He has no past medical history, apart from a long-standing alcohol drinking problem. On examination, you notice abdominal distension, splenomegaly, visible veins on the abdominal wall and bright red blood per rectum. His blood pressure is 120/64mmHg, his pulse is 100 bpm and oxygen saturation is 98% on air. Blood tests show the following:

ALP 405 u/L (30 - 100)

ALT 95 u/L (3 - 40)

Albumin 31 g/L (35 - 50)

What is the most likely diagnosis?

A.Haemorrhoids

B.Rectal varices

C.Rectal cancer

D.Bleeding disorder

E.Ulcerative colitis

Answer:Rectal varices

Explanation:

Rectal varices should be considered in patients with portal hypertension and lower gastrointestinal bleeding

Important for meLess important

The above patient presented with typical features of portal hypertension including ascites, splenomegaly and caput medusae. The most common cause of portal hypertension is cirrhosis and the results of blood tests and history of alcohol abuse indicate liver damage. When the liver is damaged, ALT and ALP are released into the bloodstream and their levels increase. Albumin is made in the liver and lower than normal levels of albumin also indicate liver damage. However, it is important to remember that LFTs can be normal in patients with cirrhosis.

Portal hypertension can also cause characteristic swelling of the veins in the anorectal region. Therefore, rectal varices are a likely cause of lower gastrointestinal bleeding and should be considered in patients with portal hypertension.

Haemorrhoids are less likely because the patient has not complained about pain around the anus, prolapse, itchiness, mucus discharge or faecal incontinence. Although rectal examination would still have to be performed to exclude haemorrhoids since they can also be asymptomatic.

The patient has no signs or symptoms suggestive of malignancy such as weight loss, night sweats or fever so rectal cancer would also be unlikely. Again, rectal examination would still have to be performed to exclude rectal cancer since lower GI bleed is a red flag symptom.

The patient has no past medical history of bleeding problems and his symptoms are not suggestive of a bleeding disorder. Nevertheless, it is important to remember that prothrombin time (PT) provides useful information on how well the liver is functioning. A high PT means that it takes longer for the blood to clot because the liver is not making the right amount of blood clotting proteins, and therefore it usually indicates liver damage or cirrhosis.

Ulcerative colitis is very unlikely due to lack of characteristic symptoms of diarrhoea mixed with blood and mucus, weight loss or extraintestinal features.

Question:

A 37-year-old woman who has never been pregnant is referred to the fertility clinic after 12 months of trying to conceive. Initial investigations show that she is ovulating and that her partner's semen analysis is normal. However, as the patient has a past history of menorrhagia, a transvaginal ultrasound is arranged. This reveals a large uterine fibroid that is distorting the uterine cavity.

What is the next most appropriate step?

A.Arrange a 3-month trial of the combined oral contraceptive pill

B.Refer for endometrial ablation

C.Refer for myomectomy

D.Refer for uterine artery embolisation

E.Repeat ultrasound in three months to monitor for spontaneous regression

Answer:Refer for myomectomy

Explanation:

The only effective treatment for large fibroids causing problems with fertility is myomectomy if the woman wishes to conceive in the future

Important for meLess important

Whilst uterine fibroids may be asymptomatic, symptoms can include menorrhagia (as seen in the history of this patient), symptoms due to their size (such as bloating and dysuria) and sub-fertility. In patients with sub-fertility in whom the only abnormal finding is a fibroid (or more than one fibroid) distorting the uterine cavity, treatment of the fibroid can promote fertility and also improve pregnancy outcomes. The medical therapies used to treat fibroids (such as anti-progestogens and gonadotrophin-releasing hormone agonists) often only temporarily reduce the size of fibroids. Furthermore, they interfere with fertility. Surgical treatment is therefore required in this case. The only surgical treatment of fibroids that preserves fertility is myomectomy, which is associated with improved fertility.

Whilst the combined oral contraceptive pill may be used to reduce the bleeding associated with fibroids, there is no good evidence that it alters the size of fibroids, and hence it would not help in this case, where a patient has sub-fertility due to a fibroid distorting her uterine cavity. Furthermore, the patient would be unable to conceive whilst on this trial of treatment.

Endometrial ablation is a treatment that destroys the lining of the endometrium. It does not shrink the size of the fibroid but does significantly reduce menstrual bleeding. It is not appropriate for this patient as this patient desires fertility. Pregnancy is often not possible after treatment and, if the patient does become pregnant, ectopic pregnancies are more likely.

Uterine artery embolisation is another procedure that is only used in patients with fibroids who do not desire fertility. It involves stopping the blood supply to the fibroid so that it degenerates. Whilst pregnancy may still be possible after uterine artery embolisation, it is not recommended due to increased obstetric risks such as placental abnormalities.

Repeat ultrasound in three months to monitor for spontaneous regression is inappropriate. Whilst conservative management may be used for fibroids that are not causing symptoms, it is not appropriate for a fibroid that is distorting the uterine cavity, potentially causing sub-fertility. Fibroids may not shrink until after menopause, so repeating the ultrasound in three months is unlikely to change this patient's management and, instead, may delay her getting adequate treatment to aid fertility.

Question:

You are called to see a 74-year-old patient who is complaining that her heart is racing. On examination, her heart rate is 209bpm and she appears breathless. Cardiac monitoring confirms a rapid narrow complex tachycardia. She states that she is now experiencing chest pain.

What is the most appropriate management step?

A.Atropine 500micrograms IV

B.Echocardiogram

C.Prescribe morphine for her chest pain

D.Salbutamol inhaler up to 10 puffs

E.Synchronised DC cardioversion

Answer:Synchronised DC cardioversion

Explanation:

Patients with tachycardia and signs of shock, syncope, myocardial ischaemia or heart failure should receive up to 3 synchronised DC shocks

Important for meLess important

This patient is in a peri-arrest tachycardia. Since she is experiencing symptoms of myocardial ischaemia she requires immediate DC cardioversion with up to 3 shocks before using any medications. This would also be the case if the patient had signs of shock, syncope or heart failure.

Atropine is used in bradycardia.

An Echocardiogram may be useful later to determine if there had been any damage to the heart from this episode of tachycardia but is not a priority.

Morphine would be a good choice of pain relief in ACS but since the cause of the chest pain is her tachycardia it is more important to end the dangerous rhythm.

Salbutamol would not be a suitable medication to give in this instance as the patient's breathlessness is most likely due to her tachycardia and salbutamol may in fact increase her heart rate.

Question:

A 40-year-old woman presents with new onset dull lower back pain since moving home. She is normally fit and well. She has a normal examination with no neurology or concerning features.

What would be the first-line treatment for her pain?

A.Paracetamol

B.Short course of diazepam

C.Amitriptyline

D.Naproxen

E.Physiotherapy

Answer:Naproxen

Explanation:

NSAIDS are first line for lower back pain

Important for meLess important

NSAIDs are now first-line management of lower back pain following updated NICE guidelines in 2016. Recommended NSAIDs include ibuprofen or naproxen and consideration should be given to co-administration of PPI.

Paracetamol alone is not recommended for lower back pain and for patients unable to tolerate NSAIDs co-codamol should be considered.

A short course of benzodiazepines can be considered in patients who reports spasms as a feature of their pain. Since this is not mentioned in the stem answer 2 would be incorrect.

Answer 5 is incorrect as NICE currently recommends only referring patients to physiotherapy who are at higher risk of back pain disability or whose symptoms have not improved at follow-up. In addition, there is likely to be some delay in attending physiotherapy and NSAIDs can be started immediately.

For further information - https://cks.nice.org.uk/back-pain-low-without-radiculopathy#!scenario

Question:

A 72-year-old male presents with a 4-month history of increasing breathlessness, fatigue and weight loss. He is now retired but previously worked as a shipyard worker for 50 years, and he has a 40 pack-year smoking history. On physical examination, there is clubbing of the fingers on both hands. A chest x-ray is performed which is shown below.

© Image used on license from Radiopaedia

What is the most likely cause of this man's symptoms?

A.Asbestosis

B.Mesothelioma

C.Metastatic lung cancer

D.Small cell lung cancer

E.Tuberculosis

Answer:Mesothelioma

Explanation:

The x-ray shows a large peripheral mass on the left and pleural plaques inferiorly over the left lower lung field. These, along with the symptoms and the asbestos exposure from working on a shipyard, point towards mesothelioma. Mesothelioma is a cancer of the mesothelial layer of the pleural cavity that is strongly associated with asbestos exposure.

Asbestosis is another lung condition that is strongly associated with asbestos exposure. In contrast to mesothelioma (where even very limited exposure can cause disease), the severity of asbestosis is related to the length of exposure. The symptoms and examination findings do fit, but the chest x-ray does not. Pleural plaques indicative of asbestos exposure would be expected and lung fibrotic changes would also be expected, however, asbestosis wouldn't cause a mass like the one seen here.

Lung metastases are seen with a wide variety of cancers including:

breast cancer

colorectal cancer

renal cell cancer

bladder cancer

prostate cancer

Metastatic lung cancer would show on a chest x-ray as multiple well-defined nodules distributed in both lung fields, rather than one single mass as seen here.

Small cell lung cancer is a type of fast-growing lung cancer that arises from amine precursor uptake and decarboxylation (APUD) cells in the bronchus called Feyrter cells. It is linked to smoking and asbestos exposure, both of which are seen in this case. The cough, shortness of breath and clubbing could be symptoms of small cell lung cancer, but the chest x-ray findings make mesothelioma the much more likely diagnosis. The distribution of the small masses would be different in small cell lung cancer - they are most commonly located centrally around the lobar or main bronchi.

Tuberculosis (TB) is an infection caused by Mycobacterium tuberculosis that most commonly affects the lungs. The clinical features of TB (such as cough, fever and haemoptysis) and risk factors (such as recent travel or immunosuppression) are not seen here, making this less likely. A chest x-ray would also likely show bilateral hilar lymphadenopathy, which is not shown here.

Question:

Primary sclerosing cholangitis is most associated with:

A.Primary biliary cirrhosis

B.Crohn's disease

C.Hepatitis C infection

D.Ulcerative colitis

E.Coeliac disease

Answer:Ulcerative colitis

Explanation:

Question:

A 27-year-old female asks for advice regarding the Mirena (intrauterine system). What is the most likely effect on her periods?

A.Continual, light bleeding is seen in 70%

B.Initially irregular bleeding later followed by periods that are generally heavier and longer

C.Heavy period approximately every 3 months

D.Amenorrhoea in > 90% after 2 months

E.Initially irregular bleeding later followed by light menses or amenorrhoea

Answer:Initially irregular bleeding later followed by light menses or amenorrhoea

Explanation:

Question:

A 14-year-old boy is due to undergo a routine surgical procedure to remove a pre-auricular cyst. The GP explains the indications and potential complications of the complication and the patient is able to repeat this information in a way that demonstrates he has understood it.

His patient's past medical history includes an appendectomy at age 8. The patient's brother also underwent removal of a pre-auricular cyst last year. The patient comments that his brother's procedure went smoothly with no complications.

Although he is deemed to be competent by the GP, his mother does not wish for him to have the procedure. The GP explains to the patient's mother that as her son is competent, she cannot overrule his decision.

Which of the following is most important in determining the GP's decision?

A.The patient is over the age of 13

B.The surgical procedure is only routine

C.The patient can understand the procedure

D.The patient has previously had surgery

E.The patient's brother has had the the same surgical procedure and it went well

Answer:The patient can understand the procedure

Explanation:

Patients are deemed capable to consent if they can (1) understand and (2) retain information relating to the procedure for a sufficient amount of time to (3) weigh up the pros and cons of the procedure and subsequently (4) effectively communicate their decision

Important for meLess important

In order to give valid consent, a patient must be able to:

Understand the information relating to the procedure

Be able to retain the information for long enough to weigh up the pros' and cons of the procedure

Communicate their decision in any way. This does NOT have to be verbally. If a patient is mute, for example, written consent is perfectly valid. In fact, some procedures require written consent.

Gillick competence is used to determine if patients under the age of 16 are able to consent for a procedure. Being older than 12 is irrelevant as some children over this age would not be able to consent.

The nature of the surgical procedure is also irrelevant when considering capacity.

The patient's previous surgical history is not directly relevant. Although it may help inform the patient's decision, it is, on its own not enough to determine capacity. Similarly, the knowledge that his brother has had the same surgical procedure is not, on its own, enough to determine if the patient is capable to give valid consent.

Question:

A 39-year-old male presents to the emergency department with a new rash on his torso and arms. The rash began about 7 days ago and in the last 2 days, he has developed a fever, with marked malaise. His past medical history includes; asthma and poorly controlled eczema. He has recently developed several cold sores on his outer lips.

On examination, he looks unwell. There are several monomorphic, punched-out lesions, about 2mm in diameter located on both arms and on his upper torso. Bilateral axillary lymphadenopathy is noted. His observations are as follows:

Blood pressure 135/81 mmHg

Pulse 94 bpm

Temperature 38.3 deg C

Respiratory rate 20/min

Which of the following is the most likely underlying cause for this patient's rash?

A.Sarcoptes scabiei

B.Streptococcus pyogenes

C.Varicella zoster virus

D.HSV-1

E.HHV-8

Answer:HSV-1

Explanation:

Eczema herpeticum is a primary infection of the skin caused by herpes simplex virus (HSV) and uncommonly coxsackievirus

Important for meLess important

This patient has eczema herpeticum - a dermatological emergency. Also known as Kaposi's varicelliform eruption, this rash occurs secondary to a viral infection - usually HSV-1. It usually occurs during a first episode of infection with Herpes-simplex. Patients may or not have visible cold sores. Punched out or vesicular lesions can spread rapidly, leading to severe levels of morbidity and mortality if antiviral medications are not promptly administered.

Sarcoptes scabiei - incorrect. Sarcoptes scabiei is the name of the mite which causes scabies. This causes intense itching and the typical distribution involves the sides and webs of the fingers, the flexor aspects of the wrists, the periumbilical area and the extensor surface of the knees. The rash seen in these areas is described as burrows. The intense pruritus can lead to secondary bacterial infection.

Streptococcus pyogenes - incorrect. Skin infections caused by Streptococcus pyogenes include impetigo, erysipelas and cellulitis. Impetigo classically presents with a 'honey-coloured' scab, while erysipelas and cellulitis present with erythematous, swollen areas of skin, usually of the extremities.

Varicella-zoster virus - incorrect. The re-activation of this virus causes shingles in adults. This presents with a vesicular/blistering rash, which is dermatomal in distribution, not widespread. As well as this, patients are rarely very systemically unwell as in this case.

HSV-1 - correct. Herpes simplex virus type 1 or 2, are by far the most common cause of eczema herpeticum. This is a dermatological emergency, requiring prompt treatment with antivirals. Although more common in children, it can affect patients of any age. Patients may or may not have a history of atopic dermatitis. The rash presents with small vesicles or else punched-out erosions, tends to spread over 7-10 days and is monomorphic (i.e. the lesions all appear similar to each other). Patients are often systemically unwell, with fever, malaise and lymphadenopathy.

HHV-8 - incorrect. Human Herpesvirus-8 causes Kaposi's sarcoma. This is a type of cancer typically seen in HIV-infected individuals. The skin lesions are usually painless and purple unlike in this scenario.

Question:

A 40-year-old male calls the GP at 12PM to organise his blood tests after a recent consultation with his psychiatrist. The psychiatrist increased his dose of lithium and requested that the GP organise lithium levels at the correct time post-dose. He took the first increased dose of lithium at 8AM (four hours ago).

In how many hours time does the GP need to organise for his blood to be taken?

A.4 hours

B.6 hours

C.8 hours

D.10 hours

E.12 hours

Answer:8 hours

Explanation:

When checking lithium levels, the sample should be taken 12 hours post-dose

Important for meLess important

The correct answer is 8 hours. Lithium levels should be checked 12 hours post-dose. If the patient took his first increase dose of lithium 4 hours ago, his levels should be checked in 8 hours time to be at 12 hours post-dose.

In 4, 6, 10 or 12 hours would not be the right timings to check lithium levels. Lithium levels should be checked 12-hours post-dose. As he took his first dose 4 hours ago, it should be checked in 8 hours time. 12 - 4 = 8.

Question:

A 21-year-old woman presents to her GP concerned as she had unprotected sexual intercourse (UPSI) four days previously.

Her past medical history includes asthma and psoriasis. She has a latex allergy. She uses oral steroids to control her asthma and takes no regular medication.

You recommend the copper coil. The patient states that her housemate recently took the 'EllaOne emergency pill' (ulipristal acetate) and she states that she would rather take a pill than have a coil inserted.

Why can this patient not use the same method as her housemate?

A.Allergy to latex

B.Asthma controlled by oral steroids

C.Not taking regular contraception

D.Psoriasis

E.UPSI being 4 days ago

Answer:Asthma controlled by oral steroids

Explanation:

Ulipristal should be used with caution in patients with severe asthma

Important for meLess important

When prescribing ulipristal acetate to someone with severe asthma i.e. controlled with oral steroids, you should be cautious due to the anti-glucocorticoid effect of ulipristal acetate.

Allergy to latex should be considered when recommending barrier contraceptive methods or examining a patient with latex gloves. It is not relevant to prescribing emergency contraception such as ulipristal (EllaOne).

Not taking regular contraception is an indication for offering emergency contraception after unprotected sexual intercourse.

Psoriasis can be a reason for caution when giving ulipristal as emergency contraception, as this condition can be managed with oral steroids. However, oral steroids are specified to only be used for her asthma.

UPSI being 4 days ago would not change your decision to prescribe ulipristal as it can be given up to 120 hours (5 days) after UPSI.

Question:

A 31-year-old nulliparous woman presents for the first time in her pregnancy at 29 weeks. Her current medications include: fluoxetine and lactulose. She wants to know what risk her medications might have to her baby.

What is a potential risk of fluoxetine when used in the third trimester of pregnancy?

A.Persistent pulmonary hypertension

B.Congenital heart defects

C.Intrauterine growth restriction

D.Spina bifida

E.Patent ductus arteriosus

Answer:Persistent pulmonary hypertension

Explanation:

SSRI use during third trimester - risk of persistent pulmonary hypertension of the newborn

Important for meLess important

SSRIs and pregnancy

BNF says to weigh up benefits and risk when deciding whether to use in pregnancy.

Use during the first trimester gives a small increased risk of congenital heart defects

Use during the third trimester can result in persistent pulmonary hypertension of the newborn

Paroxetine has an increased risk of congenital malformations, particularly in the first trimester

Question:

A doctor is examining a patient with type 2 diabetes mellitus on the vascular ward. She notes a necrotic wound on the left foot with a green exudate leaking from the wound. She alerts the nursing staff who send a swab off.

The next day she calls the lab to chase the results. They have yet to identify the organism but can confirm that it is a gram-negative rod, oxidase-positive, and non-lactose fermenting.

What is the most likely causative organism?

A.E-coli

B.Neisseria meningitidis

C.Pseudomonas aeruginosa

D.Staphylococcus aureus

E.Streptococcus pyogenes

Answer: Pseudomonas aeruginosa

Explanation:

Lab features suggestive of Pseudomonas aeruginosa include:

Gram-negative rod

non-lactose fermenting

oxidase positive

Important for meLess important

Wounds contaminated with Pseudomonas aeruginosa classically present with green exudate and a strong smell. Diabetics are at increased risk and therefore vascular wounds can frequently be contaminated with this organism. It is a gram-negative rod, non-lactose fermenting, and oxidase positive.

E-coli is a gram-negative rod but is lactose fermenting and therefore incorrect. Additionally, it is often linked to GI or urinary infections and is atypical for skin infections.

Neisseria meningitidis is gram-negative and oxidase-positive but is non-lactose fermenting and is a diplococcus bacteria as opposed to a rod. It is therefore incorrect. Additionally, this organism is not classically linked to skin infections, but rather to meningitis and septicaemia.

Staphylococcus aureus and Streptococcus pyogenes are common organisms to be implicated in dermatological infections and are reasonable suggestions from the clinical presentation. However, they are gram-positive cocci and so the microbiology clues given mean these can not be correct answers.

Question:

A 50 year old man presents with a 3 week history of cough, productive of clear sputum. This affects him more in the evenings but is unrelated to any positional changes.

On examination he is comfortable at rest. He has bilateral good air entry on auscultation, with no added breath sounds.

Which of the following additional features would prompt a chest x-ray?

A.History of reflux

B.Recent immunosuppressant therapy

C.Rhinorrhoea

D.Recently started antihypertensive therapy

E.Wheeze following contact with cats

Answer:Recent immunosuppressant therapy

Explanation:

Immunosuppressive therapy, such as chemotherapy or biological treatments can cause reactivation of TB.

Angiotensin converting enzyme (ACE) inhibitors are a class of antihypertensive drug that can cause chronic dry cough.

A history of reflux suggest a gastrointestinal cause for irritation causing cough. Rhinorrhoea may be caused by an underlying viral respiratory infection and does not require chest imaging. Nocturnal cough may suggest asthma, and wheeze following exposure to an allergen may suggest an atopic cause for this. Asthma does not require chest imaging.

(source: BTS, https://www.brit-thoracic.org.uk/document-library/clinical-information/cough/cough-guidelines/recommendations-for-the-management-of-cough-in-adults/)

Question:

A 53-year-old woman with a history of bipolar disorder, which is well controlled with lithium, presents with a 2-day history of confusion, diarrhoea and tremors. She takes regular analgesia for chronic back pain and has been feeling unwell recently.

A blood test shows:

Value Reference

Lithium (serum) 4.2 mmol/L (0.6 - 1)

Which of the following options is the likely cause of her symptoms?

A.Abruptly stopping lithium

B.Caffeine

C.Cranberry juice

D.Drinking too much water

E.Ibuprofen

Answer:Ibuprofen

Explanation:

Lithium toxicity can be precipitated by NSAIDs

Important for meLess important

Lithium has a tight therapeutic range, and levels should be closely monitored. Routine serum-lithium monitoring should be performed weekly after initiation and after each dose change until concentrations are stable, then every 3 months for the first year, and every 6 months thereafter. The level should be checked 12 hours after the last dose.

Non-steroidal anti-inflammatory drugs (NSAIDs) decrease renal excretion of lithium, thus increasing plasma levels, leading to toxicity. Angiotensin-converting-enzyme inhibitors (ACE-I) and diuretics also increase the risk of lithium toxicity due to renal dysfunction. Therefore, their use is contraindicated with lithium.

Abruptly stopping lithium would cause a decrease in lithium levels and not cause lithium toxicity.

Caffeine reduces serum lithium levels as it increases renal excretion. Conversely, a drop in caffeine intake results in reduced lithium clearance and thus leads to lithium toxicity. Therefore, patients are advised to maintain the same amount of caffeine intake while taking lithium to avoid sudden changes in lithium levels.

Cranberry juice does not interact with lithium. However, it increases the risk of rhabdomyolysis when taken with statins due to its inhibitory effect on cytochrome P450.

Dehydration rather than drinking too much water increases the risk of lithium toxicity. This is because dehydration results in a build-up of lithium in the bloodstream due to reduced excretion.

Question:

A 32-year-old man has recently registered to your practice. He attended to the surgery for a pre-employment medical examination. He is fit and well. He has a past medical history of sickle cell disease. His immunisation record shows that he was last given the pneumococcal polysaccharide vaccine five years ago.

How often should he be given the vaccine?

A.Every 12 months

B.Every 2 years

C.Every 3 years

D.Every 5 years

E.Every 10 years

Answer:Every 5 years

Explanation:

Sickle cell patients should receive the pneumococcal polysaccharide vaccine every 5 years

Important for meLess important

The correct answer is 4. For adults with sickle cell disease, they should receive the pneumococcal polysaccharide vaccine every 5 years. For children, they should have the first pneumococcal polysaccharide vaccine at 2 years, then every 5 years.

Patients with sickle cell anaemia suffer from hypofunction of the spleen due to recurrent splenic infarction. As a result, they are at high risk of pneumococcus infections.

Question:

A 41-year-old man presents to the Emergency Department insisting that he is infested with fleas. He describes that he feels unbearably itchy, and is demanding treatment. This is his third attendance within the last year with this problem. The patient has no significant past medical history and denies taking any recreational drugs. His alcohol intake is reported as 14 units of alcohol per week. He is currently working full-time as a librarian.

What is the most likely diagnosis?

A.Capgras syndrome

B.Delirium tremens

C.Delusional parasitosis

D.Fregoli syndrome

E.Schizophrenia

Answer:Delusional parasitosis

Explanation:

Patient with a fixed, false belief (delusion) that they are infested by 'bugs' → delusional parasitosis

Important for meLess important

The correct answer is delusional parasitosis. Delusional parasitosis is a rare condition in which patients present with a fixed, false belief that they are infected by bugs. Although it may present in conjunction with other psychiatric disorders, it may present in isolation, and leave patients relatively functionally unimpaired, as in this case.

Capgras syndrome is incorrect. This is a delusional misidentification syndrome whereby the patient believes that someone significant in their life, such as a spouse or a friend, has been replaced by an identical imposter.

Delirium tremens is incorrect. Although delirium tremens may involve visual hallucinations of insects, or tactile hallucinations similar to this patient's symptoms, this patient is not exhibiting other physical symptoms of delirium tremens (tremor, sweating, disorientation), and the alcohol history provided is not suggestive of excessive consumption followed by abrupt withdrawal.

Fregoli syndrome is incorrect. This is another delusional misidentification syndrome where the patient believes that multiple people are in fact all the same person, who is constantly changing their appearance.

Schizophrenia is incorrect. Schizophrenia most commonly involves auditory hallucinations rather than tactile hallucinations. In addition, the diagnosis of schizophrenia requires other symptoms to be present in addition to hallucinations, such as formal thought disorder or diminished emotional expression.

Question:

A 12-year-old boy is brought to the Emergency Department. He was hit on the side the head by a cricket ball during a match. His teacher describes him initially collapsing to the ground and complaining of a sore head. After two minutes he got up, said he felt OK and continued playing. After 30 minutes he suddenly collapsed to the ground and lost consciousness. What type of injury is he most likely to have sustained?

A.Cerebral contusion

B.Subarachnoid haemorrhage

C.Intraventricular hemorrhage

D.Extradural haematoma

E.Subdural haematoma

Answer:Extradural haematoma

Explanation:

Head injury, lucid interval - extradural (epidural) haematoma

Important for meLess important

Question:

Which one of the following conditions is most associated with pulsus paradoxus?

A.Aortic regurgitation

B.Hypertrophic obstructive cardiomyopathy

C.Aortic stenosis

D.Severe left ventricular failure

E.Cardiac tamponade

Answer:Cardiac tamponade

Explanation:

Pulsus parodoxus - cardiac tamponade

Important for meLess important

Question:

A 5-year-old child presents to the GP with one week of perianal itching that is worse in the evening. Bowel movements have remained normal during this time. Notably, the patient's 8-year-old brother also has similar symptoms.

On examination, the child appears well and there is erythema and excoriation around the anus or perineal area with no other abnormalities noted.

Given the likely diagnosis, what is the causative organism?

A.Enterobius vermicularis

B.Molluscum contagiosum birus

C.Pediculus humanus capitis

D.Trichophyton rubrum

E.Staphylococcus aureus

Answer: Enterobius vermicularis

Explanation:

Perianal itching in children, possibly affecting other family members → Enterobius vermicularis (threadworms)

Important for meLess important

Enterobius vermicularis is the correct answer. Enterobius vermicularis is colloquially known as threadworms and is a highly contagious infection that often presents in children due to the faecal-oral transmission route and can spread to siblings and other family members rapidly. The most common presentation is perianal itching.

Molluscum contagiosum virus is incorrect. This virus is a pox virus that causes benign and mild skin disease, resulting in small raised, skin-coloured lesions with a characteristic dimple in the centre. The virus is often self-limiting. Although this virus can cause itching, there is no mention of the characteristic lesions on examination and therefore molluscum contagiosum infection is very unlikely.

Pediculus humanus capitis is incorrect. This is a parasitic infection commonly known as head lice. The highly contagious parasite spreads commonly in children and presents with itching of the head. Head lice are commonly treated with topical permethrin. Infection does not spread beyond the head and scalp and therefore would not cause perianal itching.

Staphylococcus aureus is incorrect. This is a gram-positive bacteria that is responsible for a number of infections. Notably, in terms of skin infections in paediatrics, it is responsible for the highly contagious impetigo. This presents as crusty sores around the mouth and nose and is highly contagious. However, it typically presents in exposed skin areas and not around the perianal area as with this patient.

Trichophyton rubrum is incorrect. This is a fungal organism. It is commonly responsible for fungal nail infections and athlete's foot, a fungal infection of the feet resulting in itching and scaling of the skin of the feet. This fungus, however, would not cause perianal itching, and infection with Enterobius vermicularis is much more likely.

Question:

A 55-year-old female presented with frequent sweating, palpitations and diarrhoea. She also reported losing 3 kilograms over the past month. She has a history of atrial fibrillation.

What is the most likely cardiac sequela of her condition?

A.Myocardial infarction

B.High output cardiac failure

C.Ventricular aneurysm

D.Pericardial effusion

E.Prolonged QT interval

Answer:High output cardiac failure

Explanation:

Thyrotoxicosis can lead to high output cardiac failure

Important for meLess important

The patient presented with symptoms of hyperthyroidism. The common cardiac complications of thyrotoxicosis are high output cardiac failure and atrial fibrillation. In the question stem, she has already been diagnosed with atrial fibrillation.

Thyrotoxicosis is more likely to cause anginal syndrome (without signs of coronary artery disease), rather than myocardial infarction.

Ventricular aneurysm is a common complication of myocardial infarctions.

Pericardial effusion and prolonged QT interval are more likely to be caused by hypothyroidism.

Question:

A 31-year-old woman attends the antenatal clinic at 41-weeks gestation into her first pregnancy. She has not yet started to feel contractions.

On examination, her abdomen is soft with a palpable uterus in keeping with a term pregnancy. Her cervix is firm and dilated to 1cm. The foetal head is stationed to 1cm below the ischial spines.

A membrane sweep is performed and the obstetrician decides to commence treatment with vaginal prostaglandins.

What is the most likely complication of this procedure?

A.Breech presentation

B.Chorioamnionitis

C.Cord prolapse

D.Uterine hyperstimulation

E.Uterine rupture

Answer:Uterine hyperstimulation

Explanation:

The main complication of induction of labour is uterine hyperstimulation

Important for meLess important

This patient is past her due date requires induction of her pregnancy. Typically, the first-line method of inducing labour in NICE guidelines are vaginal prostaglandins. A membrane sweep can be performed as an adjunct to inducing labour. Vaginal prostaglandins act to ripen the cervix and stimulate uterine contractions. They can be administered as a gel, tablet or slow-release pessary. The main complication from induction of labour is uterine hyperstimulation which is characterised by too frequent or prolonged uterine contractions that can cause significant foetal distress. The treatment of uterine hyperstimulation requires administering tocolytic agents to relax the uterus and slow contractions.

A breech presentation is not a complication of induction of labour. This is particularly true as this foetus is stationed in the pelvis below the levels of the ischial spines.

Chorioamnionitis is the inflammation of the foetal membranes (chorion and amnion) which is most commonly secondary to a bacterial infection. There is an increased risk of chorioamnionitis with repeated vaginal examinations and prolonged labour. However, it is not the main complication of induction of labour.

Cord prolapse is a complication of inducing labour. However, it tends to be more common when the presenting part of the foetus is high. In this pregnancy, the foetal head is stationed 1cm below the ischial spine making cord prolapse a less likely complication.

Uterine rupture is a very rare complication of inducing labour. It is often secondary to uterine hyperstimulation and repeated or prolonged contractions of the uterine walls.

Question:

A 67-year-old woman presents to the GP with a 4-day history of burning pain when passing urine and increased frequency. She denies any haematuria, is not sexually active and has no past medical history except for a penicillin allergy.

Her temperature is 37.1ºC, her heart rate is 81 bpm, and her blood pressure is 133/75 mmHg. An abdominal examination is unremarkable and there is no costovertebral angle tenderness.

What is the most appropriate action for the GP to take?

A.Prescribe nitrofurantoin for 3 days and arrange urinary dipstick testing

B.Prescribe nitrofurantoin for 3 days and send a urine culture

C.Prescribe nitrofurantoin for 7 days and arrange urinary dipstick testing

D.Prescribe nitrofurantoin for 7 days and send a urine culture

E.Prescribe trimethoprim for 7 days and send a urine culture

Answer:Prescribe nitrofurantoin for 3 days and send a urine culture

Explanation:

Urine dipsticks should not be used for the diagnosis of UTI in women > 65 years, men and catheterised patients

Important for meLess important

Dysuria and increased frequency should raise suspicion of a urinary tract infection (UTI). The lack of nausea, fever, an unremarkable abdominal examination, and a lack of renal angle (costovertebral angle) tenderness makes more concerning diagnoses such as pyelonephritis less likely.

Prescribe nitrofurantoin for 3 days and send a urine culture is correct. Nitrofurantoin for 3 days is one of the first-line options for managing UTIs in women. Since this patient is over 65 years old, NICE recommends also arranging a urine culture in preference to using a urine dipstick. This is because urine dipsticks are less reliable in older patients as they tend to have asymptomatic bacteriuria which is harmless. Cultures ensure that the urinary symptoms this patient is experiencing are due to an actual UTI instead of another underlying cause which may require further tests, and allows for identifying sensitivities and changing antibiotics if necessary.

Prescribe nitrofurantoin for 3 days and arrange urinary dipstick testing is incorrect. Although the antibiotic choice and duration are correct, NICE does not recommend the use of dipstick testing in women >65 years. As mentioned above, they are less reliable in older patients as they tend to have asymptomatic bacteriuria which is harmless. Cultures ensure that the urinary symptoms this patient is experiencing are due to an actual UTI instead of another underlying cause which may require further testing.

Prescribe nitrofurantoin for 7 days and arrange urinary dipstick testing is incorrect. Although the drug choice is appropriate, women are treated for 3 days instead of 7 days. If this patient were male, 7 days would be indicated instead. Furthermore, as mentioned above, dipstick testing is not recommended in women >65 years as they are less reliable and urine cultures should be arranged instead.

Prescribe nitrofurantoin for 7 days and send a urine culture is incorrect. Although the drug choice is correct and urine cultures should be arranged, the duration of antibiotic therapy for a UTI in women is 3 days, not 7 days.

Prescribe trimethoprim for 7 days and send a urine culture is incorrect. Although trimethoprim may also be used first-line for UTIs and urine cultures should be arranged, the duration of antibiotic therapy for a UTI in women is 3 days, not 7 days.

Question:

A 32-year-old woman requests to restart the combined pill after being discharged from hospital with a diagnosis of systemic lupus erythematosus (SLE) with antiphospholipid antibodies. These remained positive at 12 weeks. She was now stabilised on hydroxychloroquine monotherapy.

Apart from this, she had a healthy BMI and blood pressure, did not smoke and had no family or personal history of venous or arterial thrombosis or breast cancer.

How would you advise on her request to restart the combined pill?

A.The advantages of using the pill generally outweigh the risks

B.The risks usually outweigh the advantages of using the combined pill

C.There is an unacceptably high clinical risk and she cannot use the pill anymore

D.There is no risk or contraindication to her restarting the combined pill

E.You need specialist advice from the gynaecology team about her risk and will seek this out via advice and guidance

Answer:There is an unacceptably high clinical risk and she cannot use the pill anymore

Explanation:

Positive antiphospholipid antibodies (e.g. in SLE) is UKMEC 4 for the COCP

Important for meLess important

The correct answer is there is an unacceptably high clinical risk and she cannot use the pill anymore. This woman has developed systemic lupus erythematosus (SLE) with antiphospholipid antibodies. This is classified as UK Medical Eligibility Criteria for Contraceptive Use UKMEC 4, which is akin to 'absolute contraindication'. The risks of arterial (stroke, myocardial infarction) and venous thrombosis (DVT, pulmonary embolism) would be unacceptably high if she restarted the combined pill, and other contraceptive options should be considered.

UKMEC guidelines list both SLE with positive antiphospholipid antibodies and the isolated presence of antiphospholipid antibodies, (but not the diagnosis of the antiphospholipid syndrome\*) as UKMEC 4 conditions.

\*The syndrome is defined by the occurrence of arterial and/or venous thromboses, and/or recurrent miscarriages or stillbirths, alongside the positivity of at least one of the antibody tests listed below on 2 occasions 12+ weeks apart.

Antiphospholipid antibodies are:

Anticardiolipin antibody IgG and IgM titres

Anti-beta2-glycoprotein I antibody IgG and IgM titres

Lupus anticoagulant (which is detected by a falsely raised aPTT or dilute Russell viper venom time)

The advantages of using the pill generally outweigh the risks is not correct. This is equivalent to UKMEC 2. If she had not tested positive on any of the three antiphospholipid antibodies and just had SLE, or if she did not test positive again after 12 weeks, this would be correct as SLE with no antiphospholipid antibodies is classified as a UKMEC 2 condition by the UKMEC guidelines.

The risks usually outweigh the advantages of using the combined pill is not correct. This is equivalent to UKMEC 3.

There is no risk or contraindication to her restarting the combined pill is not correct. This is equivalent to UKMEC 1, which is not accurate.

You need specialist advice from the gynaecology team about her risk and will seek this out via advice and guidance is not correct. This is also equivalent to UKMEC 3.

Question:

A 54-year-old man with a history of smoking, obesity, prediabetes, and high cholesterol presents to his GP with exertional chest pains. The pains come on whilst exercising or climbing the stairs to his office, are crushing in character, and are relieved by rest. He has no chest pains at present and otherwise feels well. The patient currently takes atorvastatin 20mg daily and also aspirin 75mg daily which he purchases over-the-counter. Physical examination is unremarkable. He is given a glyceryl trinitrate (GTN) spray for his pains and referred to the rapid access chest pain clinic.

In addition to the GTN, which further medication should be considered?

A.Clopidogrel

B.Ezetimibe

C.No further medication

D.Bisoprolol

E.Modified-release nifedipine

Answer:Bisoprolol

Explanation:

A beta-blocker or a calcium channel blocker is used first-line to prevent angina attacks

Important for meLess important

The above patient is likely suffering from stable angina. Whilst awaiting chest clinic assessment, a cardioselective beta-blocker such as bisoprolol or atenolol should be considered. An alternative to a cardioselective beta-blocker would be a rate-limiting calcium channel blocker such as verapamil or diltiazem.

Although a low dose antiplatelet is also recommended for stable angina, the patient is already taking aspirin 75mg daily. Aspirin is the preferred antiplatelet for stable angina. Dual antiplatelet therapy is not needed for stable angina and therefore prescribing clopidogrel is not recommended.

The above patient is currently taking atorvastatin and therefore a fibrate such as ezetimibe is likely unnecessary for lipid modification. If cholesterol levels or cardiovascular risk remains unacceptably high, then the most appropriate step would be to up-titrate his atorvastatin dose from 20mg daily to 40mg or even 80mg daily. Encouraging positive lifestyle interventions, such as weight loss and smoking cessation, are also essential.

Although calcium channel blockers are very good alternatives to beta-blockers for angina management, this only applies if they are rate-limiting. Nifedipine is a dihydropyridine calcium channel blocker and has only limited negative inotropic effects. It is therefore not recommended 1st line for angina management, though can be used in combination with a beta-blocker if monotherapy proves insufficient for symptom control.

Question:

A 67-year-old man presents to the hospital due to feeling unwell for four days. He has experienced fevers and night sweats for the last four days and breathlessness which started today. His past medical history includes hypertension, hypercholesterolaemia and an aortic valve replacement 4 weeks ago due to severe aortic stenosis.

His temperature was 38.6ºC, oxygen saturation 93% on air, heart rate 107 beats per minute, respiratory rate of 24 breaths per minute and blood pressure 105/43 mmHg.

On examination, he has a diastolic murmur over the aortic region and splinter hemorrhages over several of his nails.

What is the likely causative agent of his infection?

A.Coxiella burnetii

B.Staphylococcus aureus

C.Staphylococcus epidermis

D.Streptococcus bovis

E.Streptococcus viridans

Answer:Staphylococcus epidermis

Explanation:

Most common cause of endocarditis:

Staphylococcus aureus

Staphylococcus epidermidis if < 2 months post valve surgery

Important for meLess important

Staphylococcus epidermis is the most common cause of endocarditis within 2 months of prosthetic valve surgery.

Staphylococcus aureus would usually be the most common cause of endocarditis however this patient has recently had prosthetic valve surgery making Staphylococcus epidermis the more likely cause.

Streptococcus viridans accounts for 20% of endocarditis cases making it a less likely culprit than Staphylococcus epidermis

Streptococcus bovis can also cause endocarditis but is a less common cause. It should be considered as a more likely cause when a patient has colorectal cancer.

Coxiella burnetii is a much less common cause of endocarditis usually caused by contact with infected farm animals which causes Q fever.

Question:

A 62-year-old woman is brought in by ambulance to the emergency department. She reports worsening shortness of breath and palpitations. ECG shows atrial fibrillation with a fast ventricular response, with a heart rate of 157 bpm. On examination, she has bilateral crepitations on auscultation of the lungs and bilateral ankle oedema. Chest x-ray shows pulmonary oedema. Blood results are shown below.

Hb 138 g/L Male: (135-180)

Female: (115 - 160)

Platelets 350 \* 109/L (150 - 400)

WBC 5 \* 109/L (4.0 - 11.0)

Na+ 140 mmol/L (135 - 145)

K+ 3.8 mmol/L (3.5 - 5.0)

Urea 6.5 mmol/L (2.0 - 7.0)

Creatinine 90 µmol/L (55 - 120)

CRP 4 mg/L (< 5)

Magnesium 0.71 mmol/L (0.7-1.0)

Troponin 21 ng/L (<14)

Thyroid stimulating hormone (TSH) 3.5 mU/L (0.5-5.5)

What is the next most appropriate management step?

A.Adenosine

B.Amiodarone

C.Intravenous metoprolol

D.Synchronised DC cardioversion

E.Unsynchronised DC cardioversion

Answer:Synchronised DC cardioversion

Explanation:

Patients with tachycardia and signs of shock, syncope, myocardial ischaemia or heart failure should receive up to 3 synchronised DC shocks

Important for meLess important

Tachycardia with haemodynamic instability, signs of myocardial ischaemia, heart failure or syncope are indications for synchronised DC cardioversion. Up to 3 consecutive shocks can be given. This patient has signs of heart failure. The raised troponin is likely secondary to tachycardia rather than acute myocardial infarction (MI).

Adenosine is used to manage supraventricular tachycardia (SVT) that is not associated with shock, syncope, myocardial ischaemia or heart failure. Therefore, it is not suitable for this situation as the patient shows signs of heart failure with peripheral and pulmonary oedema.

Amiodarone is used in haemodynamically stable broad complex tachycardia. It may be considered in atrial fibrillation with a fast ventricular response if synchronised DC cardioversion is ineffective, but it would not be the most appropriate management option right now.

IV metoprolol (or oral bisoprolol) are used in fast atrial fibrillation not associated with shock, syncope, myocardial ischaemia or heart failure. However, this patient has signs of heart failure, and so this is incorrect.

Unsynchronised DC cardioversion should be used in patients with pulseless VT/VF or unstable polymorphic VT, where synchronised cardioversion is impossible. However, this patient has a tachyarrhythmia with discernible R waves, so synchronised DC conversion should be used.

Question:

A patient is administered local anaesthetic at the end of an operation. The surgeon infiltrates 20ml of 2% lidocaine.

How many mg of lidocaine does this amount to?

A.1g

B.10mg

C.40mg

D.100mg

E.400mg

Answer:400mg

Explanation:

A 2% strength liquid medicine means that 2g of the drug are dissolved in 100ml

Important for meLess important

As above, 2% strength means that 2g are dissolved in 100ml.

Therefore, in this case, 2g lidocaine are dissolved per 100ml of solution. As 20ml is infiltrated (a fifth of 100ml), divide 2g (=2000mg) by 5 to reach 400mg.

Remember the maximum safe doses of local anaesthetics:

Agent Maximum safe dose

Lignocaine 3mg/Kg

Bupivacaine 2mg/Kg

Prilocaine 6mg/Kg

Question:

A 19-year-old woman presents to the emergency department with a 48-hour history of fever, shortness of breath, myalgia, diarrhoea, and abdominal pain. She has just got off a 9-hour flight from America where she has been for 3 months. She denies any headache or neck stiffness. Her only past medical history is polycystic ovarian syndrome for which she is on the combined oral contraceptive pill, and her last menstrual period began 5 days ago.

On examination, she has a diffuse erythematous rash on the upper and lower extremities, with peeling of the skin on her palms and soles. She has a temperature of 39.5°C, a pulse rate of 132 bpm, a blood pressure of 90/62 mmHg and a respiratory rate of 32 breaths/minute.

What is the most likely diagnosis?

A.Dengue fever

B.Meningococcemia

C.Rocky Mountain spotted fever

D.Scarlet fever

E.Staphylococcal toxic shock syndrome

Answer:Staphylococcal toxic shock syndrome

Explanation:

Staphylococcal toxic shock syndrome is characterised by fever, hypotension and a rash → desquamation

Important for meLess important

The symptoms of fever, hypotension and rash with desquamation (peeling) of the palms and soles of feet are characteristic of staphylococcal toxic shock syndrome. Her last menstrual period starting 5 days ago is also a clue - in this case, it is likely that prolonged placement of a tampon has caused staphylococcal toxic shock syndrome (the cause of ~50% of cases). Her recent 9-hour flight may have contributed to her leaving her tampon in for too long.

Meningococcemia is an important differential in this case, but the lack of headache and neck stiffness makes it less likely.

The recent travel may have led you towards rocky mountain spotted fever, however, this is not the most likely diagnosis. In rocky mountain spotted fever, you would usually expect a headache and a maculopapular or petechial rash rather than an erythematous one.

Again, the travel history may have also led you towards dengue fever, however, again, this is not the most likely diagnosis. In dengue fever, the rash is more likely to be maculopapular or rubelliform rash. You also wouldn't expect desquamation in either of these.

Scarlet fever can cause desquamation, but you would expect more of a pin-prick rash, and you may also get the classic 'strawberry tongue' which is not seen here. It is also much more common in children aged 2-6 years.

Question:

A 60-year-old man presents with visual problems in his right eye. Over the last few weeks he has experienced dark floaters in his vision, but today he reports a sudden loss of vision in his right eye.

Fundoscopy is difficult, and the fundus cannot be fully visualised due to patches of redness obscuring it.

He has a 20-year history of type 2 diabetes mellitus, proliferative diabetic retinopathy, and hypercholesterolaemia, for which he takes metformin, pioglitazone, atorvastatin, and dapagliflozin. His father had a stroke in the past, and he is worried he might be having one.

What is the most likely diagnosis?

A.Central retinal artery occlusion

B.Central retinal vein occlusion

C.Posterior vitreous detachment

D.Retinal detachment

E.Vitreous haemorrhage

Answer:Vitreous haemorrhage

Explanation:

The mechanisms of sight loss in proliferative diabetic retinopathy are retinal detachment and vitreous haemorrhage

Important for meLess important

Vitreous haemorrhage is correct. This patient has a longstanding history of type 2 diabetes, for which he is taking 3 medications, suggesting it has been difficult to control. Diabetes is a major risk factor for proliferative diabetic retinopathy, which can cause sight loss through retinal detachment and vitreous haemorrhage. The dark floaters are more suggestive of vitreous haemorrhage, as is the redness in the eye on fundoscopy.

Central retinal artery occlusion is incorrect. Fundoscopy would be unobscured and show a pale retina with a cherry-red spot.

Central retinal vein occlusion is incorrect. Although this can cause patches of redness obscuring the fundus that make full fundoscopy difficult, the haemorrhaging is less profound and floaters are less common.

Posterior vitreous detachment is incorrect. Patients with posterior vitreous detachment usually see flashing lights and floaters. There are no flashing lights here, making this diagnosis less likely.

Retinal detachment is incorrect. Although this is another mechanism of visual loss in proliferative diabetic retinopathy, the vision loss would have been progressive like a 'veil/curtain coming down', which is not present here.

Question:

You are asked to review a 42-year-old man who has been admitted to the acute medical unit with anaemia. The patient is known to have sickle cell anaemia. His blood results show:

Hb 37 g /l

Reticulocyte count 0.4%

His Hb is normally 70 g/l.

What is the most likely diagnosis?

A.Psoas haemorrhage

B.Acute sequestration

C.Parvovirus

D.Splenic haemorrhage

E.Acute haemolysis

Answer:Parvovirus

Explanation:

A sudden anemia and a low reticulocute count indicates parvovirus. Acute sequestration and haemolysis causes a high reticulocyte count.

Question:

A 38-year-old man presents with a severe, intermittent, daily, left-sided frontotemporal/ orbital headache over the past 6 weeks. It seems to occur around the same time each day and lasts for approximately 1 hour. The pain makes him feel nauseous although he has not vomited. Interestingly, he also reports his right eye sometimes appears red and painful with increased lacrimation.

What is the most appropriate acute treatment to give?

A.Amitriptyline

B.Carbamazepine

C.Diclofenac with metoclopramide

D.Intranasal sumatriptan

E.Oxygen (100%) + subcutaneous sumatriptan

Answer:Oxygen (100%) + subcutaneous sumatriptan

Explanation:

Cluster headache - acute treatment: subcutaneous sumatriptan + 100% O2

Important for meLess important

This man is most likely suffering from cluster headaches from the scenario given.

The acute treatment of cluster headaches includes subcutaneous sumatriptan and 100% oxygen.

Amitriptyline is sometimes used in chronic tension-type headache alongside migraine.

Carbamazepine is used in trigeminal neuralgia.

Diclofenac with metoclopramide can be used in the acute management of migraine.

Intranasal sumatriptan can be used for migraine but is less effective in cluster headache.

Question:

A 27-year-old man presents to the emergency department with fever and severe pain in his knee. On examination, the right knee appears swollen and red. There is a reduced range of motion in both flexion and extension. The joint is warm to the touch.

His heart rate is 92/min, respiratory rate 19/min, blood pressure 132/70 mmHg, and temperature 39.1 ºC.

He has no past medical history and takes no regular medications. He lives with his girlfriend and he is sexually active.

Given the most likely diagnosis, what is the most likely causative organism?

A.Campylobacter

B.Chlamydia trachomatis

C.Neisseria gonorrhoeae

D.Staphylococcus aureus

E.Yersinia enterocolitica

Answer:Neisseria gonorrhoeae

Explanation:

In young adults with septic arthritis, Neisseria gonorrhoeae is the most common organism found

Important for meLess important

The correct answer is Neisseria gonorrhoeae. This patient is presenting with the classical features of septic arthritis: a hot, swollen joint with a reduced range of motion, accompanied by fever. This condition is most commonly caused by Neisseria gonorrhoeae in young adults who are sexually active, as this patient. A synovial fluid sample should be taken prior to antibiotic administration to confirm the source of infection.

Campylobacter is a common cause of post-dysenteric reactive arthritis. It usually occurs within 4 weeks of initial infection and it presents with asymmetrical oligoarthritis of lower limbs, accompanied by dactylitis, symptoms of urethritis, and eye disturbances such as conjunctivitis. This patient does not complain of systemic features other than the fever, making this option incorrect.

Chlamydia trachomatis is the most common cause of post-sexually transmitted infection form of reactive arthritis. Since that this patient does not complain of dactylitis, symptoms of urethritis, and eye disturbances this option is incorrect.

Staphylococcus aureus is the most common overall cause of septic arthritis, but not in young adults.

Yersinia enterocolitica is a common cause of post-dysenteric reactive arthritis. Since that this patient does not complain of dactylitis, symptoms of urethritis, and eye disturbances this option is incorrect.

Question:

A 65-year-old woman presents feeling generally unwell.

Upon questioning, she has been low in mood and energy, with aches throughout her body. She is feeling more nauseous and constipated and her reflux has flared up. She is eating less as a result, but keeping well hydrated.

Her past medical history includes type 2 diabetes, which was diagnosed 2 years ago and is well controlled on metformin alone, gastro-oesophageal reflux disease (GORD), and hypertension, which was recently diagnosed.

Recent blood tests showed:

Hb 135 g/L (115 - 160)

Urea 5 mmol/L (2.0 - 7.0)

Creatinine 60 µmol/L (55 - 120)

What is the most likely diagnosis?

A.Primary hyperparathyroidism

B.Primary hypoparathyroidism

C.Secondary hyperparathyroidism

D.Secondary hypoparathyroidism

E.Secondary hypothyroidism

Answer:Primary hyperparathyroidism

Explanation:

Depression, nausea, constipation, bone pain → ?primary hyperparathyroidism

Important for meLess important

Primary hyperparathyroidism is the correct answer. Remember the 'moans, groans, and bones' of hyperparathyroidism that occur due to hypercalcaemia. The patient is presenting with moans (depression), abdominal groans (nausea, reflux and constipation), and bones (aches throughout the body). Polydipsia and polyuria are also common features, as hinted by the patient 'keeping well hydrated', as is hypertension, which was recently diagnosed in this patient. Other important associations are renal stones and pancreatitis.

Remember the important distinction between primary and secondary: in hyperparathyroidism, secondary refers to renal disease. In hypoparathyroidism, secondary refers to surgical/radiation damage of the parathyroid gland. In hypothyroidism, secondary refers to pituitary or hypothalamic damage (i.e. affecting TSH production rather than T4 directly). In this case, none of the above apply to the patient, so we can rule out 'secondary' diagnoses. Primary hypoparathyroidism is congenital, which leaves primary hyperparathyroidism.

Secondary hyperparathyroidism usually occurs due to renal disease, which this patient does not suffer from as far as we know. While diabetes is a risk factor for renal disease, her diabetes was only diagnosed last year and has been well controlled on metformin alone, which makes diabetic nephropathy less likely in this case. Similarly, hypertension is also a risk factor for renal disease, but the patient has only developed this recently. Importantly, recent blood tests showed normal renal function.

Primary hypoparathyroidism, is a congenital condition, with the four main causes being DiGeorge syndrome, type 1 autoimmune polyglandular syndrome, lack of parathyroid glands at birth, and PTH gene mutations. This is not the correct diagnosis for this patient with new onset of symptoms at this age. Hypoparathyroidism would also not explain the presenting symptoms. It would instead cause low calcium and high phosphate levels, which can result in tingling or numbness, muscle cramps or spasms, fatigue, headaches, patchy hair loss, and mood changes.

Secondary hypoparathyroidism could result in depression (due to chronic hypocalcaemia), but would be more likely accompanied by other signs of hypocalcaemia, as mentioned above. Most importantly, 'secondary' hypoparathyroidism develops as a result of damage to the parathyroid glands, usually due to either neck surgery or radiation therapy to the neck region. The patient has had neither of these treatments.

Secondary hypothyroidism could cause constipation and depression, usually accompanied by weight gain and hair loss rather than nausea and bone pain, therefore, we may suspect primary (rather than secondary) hypothyroidism as a valid differential in this case. However, for it to be termed 'secondary' hypothyroidism, it would need to be a result of disorders of the pituitary gland or the hypothalamus causing an inadequate TSH production. There is nothing to suggest a pituitary issue in this case, which makes this diagnosis less likely.

Question:

A 27-year-old woman presents with painful genital ulceration. She has had recurrent attacks for the past four years. Oral aciclovir has had little effect on the duration of her symptoms. She has also noticed for the past year almost weekly attacks of mouth ulcers which again are slow to heal. Her only past medical history of note is being treated for thrombophlebitis two years ago. What is the most likely diagnosis?

A.Behcet's syndrome

B.Polyarteritis nodosa

C.Systemic lupus erythematosus

D.Sarcoidosis

E.Herpes simplex virus type 2

Answer:Behcet's syndrome

Explanation:

Question:

A 65-year-old man with type 2 diabetes has just been started on insulin. His past medical history includes a heart attack 2 years ago for which he takes a beta-blocker, calcium channel blocker, ace-inhibitor, statin and has GTN-spray prescribed. Which of his medications could lead to a reduced awareness of the symptoms of a hypoglycemic event following his insulin use?

A.Beta-blocker

B.Calcium channel blocker

C.Ace-inhibitor

D.Statin

E.GTN-spray

Answer:Beta-blocker

Explanation:

Beta-blockers reduce hypoglycaemic awareness

Important for meLess important

This question is asking about a man who is about to be started on insulin. A drug that has a risk of a hypoglycemic event that can be serious if not quickly corrected. The question is asking about drug interactions that may lead to impaired consciousness of hypoglycaemic awareness. Thus the correct answer is beta-blockers.

Beta-blockers can theoretically suppress all of the adrenergically mediated symptoms of hypoglycemia and thus can lead to unawareness of hypoglycemic events.

Question:

A 40-year-old man presents with a productive cough that has been worsening for the past six months. He is a known intravenous drug user and has had multiple episodes of pneumonia in the past. Physical examination shows conjunctival pallor and bilateral wheezing. Laboratory studies show.

Eosinophils 7 \* 109/L (0 - 0.4\* 109/L)

Serum IgE 1000 kU/L (5 - 120 kU/L)

Sputum microscopy eosinophils and fungal hyphae

A chest X-ray shows proximal bronchiectasis and consolidations in the right upper lobe.

Which of the following is the treatment of choice for this patient?

A.Nebulised albuterol

B.Inhaled beclomethasone

C.Oral prednisolone

D.Oral itraconazole

E.Intravenous amphotericin

Answer:Oral prednisolone

Explanation:

Oral glucocorticoids are the treatment of choice for allergic bronchopulmonary aspergillosis

Important for meLess important

The history here is in keeping with a history of allergic bronchopulmonary aspergillosis.

Nebulised albuterol, is used in the acute management of asthma. This patient has features of asthma along with eosinophilia, raised serum IgE and fungal hyphae on sputum examination. All these together make allergic bronchopulmonary aspergillosis a more likely diagnosis. Furthermore, he has had a productive cough for six months, making any acute management unnecessary.

Low dose inhaled corticosteroids are the mainstay in the chronic management of bronchial asthma, so not indicated here. In any patient presenting with features of asthma and laboratory studies show eosinophilia, it is important to consider allergic bronchopulmonary aspergillosis.

Oral glucocorticoids is the treatment of choice in allergic bronchopulmonary aspergillosis. High dose prednisolone is used for acute management followed by low to medium dosing for maintenance. It is then tapered off over 3-12 months. Prednisolone decreases the risk of bronchiectasis.

Oral itraconazole is an anti-fungal and can be used in allergic bronchopulmonary aspergillosis as a steroid sparer. It does not replace the need for oral steroids. When using itraconazole, liver function tests should be monitored.

Intravenous amphotericin is one of the medications that can be used in invasive aspergillosis. This is usually seen in immunocompromised patients such as those on cancer chemotherapy, immune system diseases such as chronic granulomatous disease, bone marrow transplant etc. It can spread rapidly through the lungs causing granulomatous inflammation, necrosis and suppuration. It may also spread via the blood to other organs leading to disseminated infection.

Question:

A 66-year-old male presents to the emergency department with a rash over his lower limbs. He has recently recovered from an upper respiratory tract infection three weeks ago. He has no past medical history of note and is not taking any medications.

On examination, you find widespread fine petechiae over the lower limbs and a large bruise over his right knee. The patient reports this occurred when he hit his knee whilst getting out of the car. There is no evidence of active bleeding.

Observations are taken:

Blood pressure 132/78 mmHg

Heart rate 91 bpm

Temperature 37.2ºC

Saturations 95% on air

Blood results show:

Hb 121 g/L Male: (135-180)

Female: (115 - 160)

Platelets 8 \* 109/L (150 - 400)

WBC 4.5 \* 109/L (4.0 - 11.0)

Na+ 140 mmol/L (135 - 145)

K+ 3.9 mmol/L (3.5 - 5.0)

Urea 5.9 mmol/L (2.0 - 7.0)

Creatinine 70 µmol/L (55 - 120)

CRP 12 mg/L (< 5)

Peripheral blood film True thrombocytopenia with no evidence of myelodysplasia

What is the most appropriate initial of management for this patient?

A.Intravenous immunoglobulin

B.Intravenous methylprednisolone

C.Observation

D.Oral prednisolone

E.Pooled platelet transfusion

Answer:Oral prednisolone

Explanation:

First-line treatment for ITP is oral prednisolone

Important for meLess important

The patient here has presented with a typical history of immune thrombocytopenia (ITP) which has been precipitated by a recent upper respiratory tract infection. The patient is haemodynamically stable without any significant active bleeding. Generally, asymptomatic patients do not require active treatment. However, where the platelet count falls below 30\* 109/L treatment is usually indicated due to the increased risk of bleeding once the platelet count falls to this level.

The general treatment principle is as follows in adults:

Presentation First line management

Emergency treatment: life-threatening or organ threatening bleeding Platelet transfusion, IV methylprednisolone and intravenous immunoglobulin

Platelet count >30\*109/L Observation

Platelet count <30\*109/L Oral prednisolone

Intravenous immunoglobulin IVIg is used in the treatment of ITP however it would not be indicated as a first-line treatment. IVIg is typically indicated where there has been a poor response to initial therapy or there are contraindications to steroid therapy.

Intravenous methylprednisolone is used in the treatment of ITP however the patient in this circumstance is haemodynamically stable and can take medications orally. Initial therapy with oral prednisolone should be considered therefore in the first instance.

Observation would be considered if the platelet count was >30\*109/L as a first-line treatment. However, in this circumstance the platelet count is 8\*109/L and so the patient is at risk of severe bleeding with the current platelet count.

Oral prednisolone is the correct answer in this circumstance due to the fact the patient is haemodynamically stable and the platelet count is below 30\*109/L.

Pooled platelets are avoided in ITP unless the patient is suffering from life-threatening bleeding.

Question:

A 5-year-old girl is brought to the general practice due to body lesions noticed by their father during bathing. There are 3 discrete lesions on the back - the lesions are raised pink papules with central umbilication. The child is unaware of them and is otherwise well.

What is the next best management step?

A.Cryotherapy

B.Oral fluconazole

C.Reassurance

D.Skin biopsy

E.Topical fusidic acid

Answer:Reassurance

Explanation:

Molluscum contagiosum in children - treatment is not usually recommended.

Important for meLess important

This scenario describes a child with a characteristic lesion from molluscum contagiosum - in this condition, there are pink or pearl coloured papules with central umbilication. Molluscum contagiosum is normally a self-limiting condition, which can be managed with reassurance. Only when lesions are troublesome or considered unsightly may they be managed with cryotherapy or simple trauma - this is not described in the above stem. Molluscum contagiosum can be spread through sharing towels, clothing, and baths.

Cryotherapy is not the single best answer. Whilst cryotherapy may be used for troublesome or unsightly lesions, the stem describes that the child is unaware of them and otherwise well, indicating that reassurance is the better management step.

Oral fluconazole is an incorrect answer. Oral fluconazole is a systemic antifungal that can be used for candidiasis and other fungal infections. It is not indicated in molluscum contagiosum, which is described in the above case by the characteristic papules with central umbilication.

Skin biopsy is an incorrect answer. Skin biopsies may be taken for removal or diagnosis of a skin lesion, however, this is not typically required in molluscum contagiosum as it is a self-limiting condition.

Topical fusidic acid is an incorrect answer. Topical fusidic acid is a narrow-spectrum antibiotic that can be used for staphylococcal infections, such as impetigo. It is not indicated in molluscum contagiosum.

Question:

A 30-year-old woman comes for review. She reports always having had heavy periods but over the past six months they have become worse. There is no history of dysmenorrhoea, intermenstrual or postcoital bleeding. She has had two children and says she does not want anymore. Gynaecology examination is normal and her cervical smear is up-to-date. What is the treatment of choice?

A.Hysterectomy

B.Combined oral contraceptive pill

C.Endometrial ablation

D.Intrauterine system (Mirena)

E.Tranexamic acid

Answer:Intrauterine system (Mirena)

Explanation:

Menorrhagia - intrauterine system (Mirena) is first-line

Important for meLess important

Question:

A 61-year-old woman comes for review. Around one year ago she finished a 6 month course of warfarin after being diagnosed with an unprovoked, proximal deep vein thrombosis. For the past few weeks she has been experiencing 'heaviness' and 'aching' in the the same leg. This is associated with an itch and some swelling, although this seems to go down each night. Past medical history of note includes osteoarthritis and type 2 diabetes mellitus.

On examination prominent varicose veins are seen on the affected leg with some brown discolouration of the skin above the medial malleolus. There is no difference in the circumference of the calves. Her temperature is 36.9ºC, pulse 78/min and blood pressure 108/82 mmHg. What is the most likely diagnosis?

A.Recurrence of deep vein thrombosis

B.Post-thrombotic syndrome

C.Cellulitis

D.Ruptured Baker's cyst

E.Necrobiosis lipoidica

Answer:Post-thrombotic syndrome

Explanation:

The slowly progressive symptoms of pruritus and pain accompanied by the examination findings are strongly suggestive of post-thrombotic syndrome.

Question:

At what age would the average child acquire the ability to walk unsupported?

A.6-7 months

B.8-9 months

C.10-11 months

D.13-15 months

E.2 years

Answer:13-15 months

Explanation:

Question:

A 17-year-old female presents with recurrent attacks of collapse. These episodes typically occur without warning and have occurred whilst she was running for a bus. There is no significant past medical history and the only family history of note is that her father died suddenly when he was 38-years-old. What is the likely cause?

A.Vaso-vagal attacks

B.Anxiety

C.Epilepsy

D.Cardiogenic syncope

E.Malingering

Answer:Cardiogenic syncope

Explanation:

Sudden death, unusual collapse in young person - ? HOCM

Important for meLess important

This is a rather vague question. However, a family history of sudden death should make you think of conditions such as hypertrophic obstructive cardiomyopathy

Question:

A 71-year-old man is reviewed at the local community hospital at 11 pm by the doctor. On observation, he is pale, sweaty, and complains of severe chest pain that started whilst watching television 30 minutes ago. An urgent ECG shows ST-elevation in leads II, III, and aVF. It is suspected he is having a myocardial infarction. The nearest PCI unit is 30 minutes away by helicopter but due to adverse weather conditions, you are unlikely to be able to arrange an air transfer until the morning. By ambulance, the PCI unit is approximately a three-hour drive.

What is the most suitable management plan for this patient?

A.Admit overnight on a cardiac monitor for transfer by helicopter first thing in the morning

B.Arrange serial troponin levels and deliver fibrinolysis therapy if elevated

C.Arrange transfer by ambulance immediately for PCI

D.Deliver fibrinolysis immediately

E.Giving aspirin, ticagrelor, fondaparinux, sublingual nitrates, and morphine, and discharge for follow-up in the local rapid access chest pain clinic

Answer:Deliver fibrinolysis immediately

Explanation:

STEMI management: PCI if presents within 12 hours of onset AND PCI can be delivered within 120 minutes of the time when fibrinolysis could have been given

Important for meLess important

Delivering fibrinolysis immediately is the correct answer. This is the most appropriate option as PCI is not available within 120 minutes of the time when fibrinolysis could be given. PCI is the gold-standard treatment under normal circumstances when all options are readily available. However, when there is a delay of greater than two hours then the patient is better off receiving fibrinolysis if it is available. So to put it simply if PCI can be delivered within 120 minutes of when fibrinolysis can be delivered then it is the preferred treatment.

Admit overnight on a cardiac monitor for transfer by helicopter first thing in the morning is incorrect. This patient required immediate assessment and treatment, therefore transfer in the morning would mean the window for optimum outcome would have passed.

Arrange serial troponin levels and deliver fibrinolysis therapy if elevated is incorrect. The ECG and clinical picture are already enough to suspect an ST-elevation myocardial infarction (STEMI). No further tests are required prior to treatment and managing the STEMI urgently will yield the best outcomes.

Arrange transfer by ambulance immediately for PCI is incorrect. PCI is the gold-standard treatment when it can be delivered within 120 minutes of when fibrinolysis could have been given. Due to the delay in this scenario, it would not be the best option as fibrinolysis is available much sooner.

Giving aspirin, ticagrelor, fondaparinux, sublingual nitrates, and morphine, and discharging for follow-up in the local rapid access chest pain clinic is incorrect. This patient is likely having a myocardial infarction and therefore requires immediate assessment and treatment. Although some of these interventions may have a role in the immediate management of this patient, ultimately the patient requires either PCI or fibrinolysis. Follow-up in a rapid access chest pain clinic will be more appropriate for less acute presentations.

Question:

A 63-year-old nulliparous lady presents to her general practitioner with symptoms of abdominal bloating and diarrhoea. She has a family history of irritable bowel syndrome. On examination, the abdomen is soft and non-tender with a palpable pelvic mass. Which one of the following is the most suitable next step ?

A.Prescribe Loperamide and Buscopan

B.Measure CA125 and refer her urgently to gynaecology

C.Perform CA125 and an ultrasound scan and only refer her urgently to gynaecology if these results return as abnormal

D.Refer her for an urgent abdominal/pelvic ultrasound scan

E.Measure oestrogen and progesterone levels

Answer:Measure CA125 and refer her urgently to gynaecology

Explanation:

If suspicion of ovarian cancer but there is an abdominal or pelvic mass, CA125 and US test can be bypassed and the patient directly referred to gynaecology

Important for meLess important

Irritable bowel syndrome rarely presents in patients above 50 years old for the first time, hence prescribing loperamide and buscopan would not be appropriate for the next step. These symptoms in women over 50 years old should prompt investigation to rule out ovarian cancer. Whilst in most patients with suspected ovarian cancer you would await the results of the CA125 and ultrasound scan before referring, as this patient has an abdominal mass, she should be urgently referred to gynaecology regardless of these results. Measuring CA125 should still be performed as she does have symptoms of ovarian cancer, however, it would not be appropriate to wait for the results of tests to determine whether she requires an urgent referral, as the guidelines already recommend urgent referral.

Question:

Which of these is a possible indication for induction of labour?

A.Bishop's score of 7

B.Previous induced labour

C.Uncomplicated pregnancy at 41 weeks gestation

D.Previous classical Caesarean section

E.Breech position

Answer:Uncomplicated pregnancy at 41 weeks gestation

Explanation:

1: Bishop's score is scored out of 10, and the higher the score the more favourable the cervix, or the more likely spontaneous birth will occur. A score <5 indicates labour is unlikely to start without induction.

2: Not an indication for induction.

3: Correct, women should be offered induction between 41-42 weeks of an uncomplicated pregnancy to avoid risks of prolonged pregnancy.

4: Previous classical Caesarean section is an absolute contraindication for induction of labour.

5: Induction is not recommended when the fetus is in breech position.

See: NICE guidelines - Inducing labour and Antenatal care for uncomplicated pregnancies

Question:

A 25-year-old male with no significant past medical history is taken to the operating theatre for an emergency appendicectomy. He is induced with sevoflurane and maintained on sevoflurane and propofol. A warning on the anaesthetic machine appears, due to elevated end-tidal CO2. The patient appears unwell, with skin mottling and diaphoresis.

What is most likely responsible for this change in his presentation?

A.Cardiac arrest

B.Endobronchial intubation

C.Malignant hyperthermia

D.Normal anion gap metabolic acidosis

E.Perforation of the appendix

Answer:Malignant hyperthermia

Explanation:

Volatile liquid anaesthetics

(isoflurane, desflurane, sevoflurane) may cause malignant hyperthermia

Important for meLess important

Malignant hyperthermia (MH) is a rare, serious side effect of volatile liquid anaesthetics (isoflurane, desflurane, sevoflurane), which cause all skeletal muscle to rapidly contract, including during a neuromuscular blockade. MH is a genetic disorder, manifesting due to calcium overload in the skeletal muscle causing sustained muscular contraction and rhabdomyolysis, resulting in excess anaerobic metabolism causing acidosis. End-tidal CO2 increases as a result, along with body temperature which causes diaphoresis (excess sweating). This patient has exhibited the typical signs described, directly after administration of sevoflurane, making MH the correct answer.

Cardiac arrest can rarely be caused by anaesthetic agents. However, we have been given no indication that the patient's heart has stopped. In a cardiac arrest, the monitor might show asystole, ventricular fibrillation or ventricular tachycardia. The patient would most likely be cool and clammy rather than diaphoretic (sweaty).

Endobronchial intubation is a possible cause of acute deterioration during surgery. However, this is not associated with diaphoresis or skin mottling and a drop in oxygen saturation would be noted on the monitor.

Normal anion gap metabolic acidosis, also known as hyperchloraemic metabolic acidosis, is an unlikely complication after induction in an otherwise healthy patient. It also does not explain the other specific features that have been discussed.

Spontaneous perforation of the appendix is a possible reason for an acute deterioration in this patient. It is likely the reason the surgery is going ahead as an emergency. However, this process would not cause an immediate rise in end-tidal CO2, or cause diaphoresis in an anaesthetised patient.

Question:

A 32-year-old presents to the GP at 37 weeks of pregnancy with symptoms of urinary frequency and urgency. She feels systemically well, describes good fetal movements and does not have any vaginal bleeding. Her temperature is 37.4ºC, heart rate 85bpm, respiratory rate 18/min and blood pressure 120/75mmHg.

A urine dipstick is positive for leukocytes and negative for nitrites, blood and ketones.

What is the most appropriate action?

A.Admit to hospital under obstetrics

B.Send urine for microscopy, culture and sensitivities and treat based on sensitivities

C.Treat with seven days of amoxicillin

D.Treat with seven days of nitrofurantoin

E.Treat with three days of trimethoprim

Answer:Treat with seven days of amoxicillin

Explanation:

UTI in a pregnant woman in the third trimester - use amoxicillin or cefalexin

Important for meLess important

This is the case of a urinary tract infection at term in the third trimester of pregnancy.

The correct answer is treat with 7 days of amoxicillin. All urinary tract infections in pregnancy should be treated, and treatment should be for seven days. Nitrofurantoin is the first-line antibiotic for urinary tract infections in pregnant women, however, it should be avoided later in pregnancy and at term due to the possibility of causing neonatal haemolysis. Amoxicillin or cefalexin are appropriate second-line antibiotics (ideally based on any previous sensitivities). A sample of urine should always be sent for microscopy, culture and sensitivities before starting treatment. A follow-up sample test to confirm cure following treatment is best practice.

Admit to hospital under obstetrics is not necessary at this point. The patient is well, with no indication of sepsis or pyelonephritis, and there is no evidence of pregnancy compromise. If these were to occur, a review by the obstetrics team would be appropriate.

Send urine for microscopy, culture and sensitivities and treat based on sensitivities is not appropriate here as urinary tract infections in pregnancy should be treated as soon as possible with empirical therapy to prevent complications. A urine sample should however always be sent prior to starting treatment, and treatment adjusted based on results if required.

Treat with three days of trimethoprim is incorrect. Urinary tract infections in pregnancy should be treated for seven days. Trimethoprim is contraindicated in early pregnancy due to its teratogenicity and the British National Formulary (BNF) recommends avoiding it for the duration of pregnancy.

Treat with seven days of nitrofurantoin is incorrect. Nitrofurantoin is the first-line antibiotic for urinary tract infections in pregnant women, however, it should be avoided later in pregnancy and at term due to the possibility of causing neonatal haemolysis.

Question:

A 34-year-old man presents for the removal of a mole. Where on the body are keloid scars most likely to form?

A.Sternum

B.Lower back

C.Abdomen

D.Flexor surfaces of limbs

E.Scalp

Answer:Sternum

Explanation:

Keloid scars are most common on the sternum

Important for meLess important

Question:

A 46-year-old lady treated for left-sided pneumonia is discharged home on oral antibiotics. 10 days after discharge, she develops new onset fevers, malaise, shortness of breath and left-sided chest pain. Chest x ray reveals a large left-sided pleural effusion and she undergoes thoracentesis, revealing a turbid effusion containing pus.

What other features of the aspirate would strongly suggest this lady has developed an empyema?

A.pH<7.2, high glucose, high LDH

B.pH<7.2, low glucose, high LDH

C.pH>7.3, low glucose, high LDH

D.pH>7.4, low glucose, low LDH

E.pH>7.4, low glucose, high LDH

Answer:pH<7.2, low glucose, high LDH

Explanation:

Empyema: Turbid effusion with pH<7.2, Low glucose, High LDH

Important for meLess important

Following a pneumonia, some patients develop a free-flowing exudate (parapneumonic effusion) that may become infected when there is bacterial invasion across the damaged lung epithelium. In the presence of pus, this effusion is termed an empyema, and is characterised as having a pH <7.2, a low glucose (<3.4 mmol/L), and a high LDH (>200 IU/L or 2-3 times above upper limit of normal range for serum).

Sources: Management of pleural infection in adults: British Thoracic Society pleural disease guideline 2010

Question:

A 67-year-old woman visits her GP as she has noticed a shallow sore on her left leg. She is concerned because it has been there for about 2 weeks and does not appear to be healing.

On examination the patient is overweight, her body mass index (BMI) is 35.3 kg/m². On the medial aspect of her left shin, superior to her medial malleolus is a 5 x 3 cm open sore. She also has an enlarged, tortuous vein visible on her left calf. Her pedal pulses are palpable bilaterally. Her ankle brachial pressure index (ABPI) is 1.2.

Given the information above, what is the indication for referring her to vascular surgery?

A.She has a varicose vein

B.She thinks it is unsightly

C.Her ABPI is 1.2

D.She has a venous leg ulcer

E.She is >65

Answer:She has a venous leg ulcer

Explanation:

Patients who have varicose veins and an active or healed venous leg ulcer should be referred to secondary care for treatment

Important for meLess important

The following are all NICE criteria for referring a patient to secondary care for consideration of interventional treatment of varicose veins as laid out in the NICE CKS summary:

Symptoms associated with varicose veins such as 'heavy' or 'aching' legs.

Skin changes associated with chronic venous insufficiency such as venous eczema or haemosiderin deposition.

Superficial vein thrombosis.

A venous leg ulcer (a break in the skin below the knee that has not healed in 2 weeks), either active or healed.

Having a varicose vein on it's own is not a reason to refer someone to secondary care. Referral is only indicated if it is symptomatic or associated with skin changes, superficial vein thrombosis or an ulcer (healed or active).

Her thinking it is unsightly is not a reason for referral to secondary care but it is relevant to have elicited her 'ideas, concerns and expectations'.

Her ABPI is within the normal range. If her ABPI was <0.8 then she would need a referral to secondary care as this might suggest mixed arterial/venous disease. If it was >1.3 she might also need a referral to secondary care as she might not be suitable for compression therapy due to the calcification of vessels.

There are no age-related referral criteria. Varicose veins can commonly affect young pregnant women so there is no minimum age limit for referrals.

Question:

A 54-year-old man presents to the Emergency Department with progressive shortness of breath. He sustained an anterior ST-elevation myocardial infarction (MI) two weeks ago and underwent primary percutaneous coronary intervention with placement of a single drug-eluting stent in the left anterior descending artery. His other past medical history includes hypertension and hypercholesterolaemia. His medications include aspirin, clopidogrel, bisoprolol, ramipril, lansoprazole and atorvastatin. He does not smoke or drink alcohol.

His observations are as follows:

Heart rate of 98 beats per minute

Respiratory rate of 21 breaths/min

Oxygen saturation of 94% on room air

Blood pressure of 138/92 mmHg

Temperature of 37ºC

On examination, there are crackles at the lung bases. The jugular venous pulse is moderately elevated and there is pedal oedema.

Plain radiography of the chest demonstrates upper lobe diversion and mild interstitial oedema. An ECG demonstrates pathological Q waves and ST-elevation > 2mm in leads V1-V3.

What is the most likely explanation for the ECG findings?

A.Dressler's syndrome

B.Left ventricular aneurysm

C.ST-elevation myocardial infarction secondary to in-stent restenosis

D.ST-elevation myocardial infarction secondary to stent thrombosis

E.Viral pericarditis

Answer:Left ventricular aneurysm

Explanation:

Persistent ST elevation following recent MI, no chest pain - left ventricular aneurysm

Important for meLess important

A left ventricular aneurysm is the correct answer. This condition may develop in patients who have had an ST-elevation myocardial infarction. This is typically associated with persistent ST-elevation and left ventricular failure. The patient has clinical evidence of heart failure with shortness of breath, bibasal crackles, raised JVP and peripheral oedema.

Dressler's syndrome is incorrect. This is a form of post-infarct pericarditis. It typically occurs 2-5 weeks post-MI. It is usually characterised by chest pain rather than shortness of breath. One would expect the ST-elevation to be saddle-shaped and widespread rather than regional.

Viral pericarditis is incorrect. Again, pericarditis is usually characterised by pain, rather than shortness of breath (although this may be present if there is an effusion). Furthermore, the patient may have a fever, which is absent in this case.

ST-elevation myocardial infarction secondary to stent thrombosis is incorrect. There is no suggestion that the patient has not been compliant with his medications and therefore this is unlikely. Furthermore, chest pain would be expected if this was the cause.

ST-elevation myocardial infarction secondary to in-stent restenosis is incorrect. This usually happens 3-12 months after a procedure and therefore the time frames are too short.

Question:

A 26-year-old female presents to the emergency department with a painful lump in her perianal area. Her past medical history includes recurrent abdominal pain and diarrhoea. Upon examination, she appears very thin and pale. The doctor suspects a diagnosis of Crohn's disease.

Which one of the following features is most associated with the likely diagnosis?

A.Crypt abscess

B.Increased risk of primary sclerosing cholangitis

C.Increased goblet cells

D.Inflammation limited to submucosa

E.Uveitis

Answer:Increased goblet cells

Explanation:

Crohn's disease - increased goblet cells

Important for meLess important

The patient presents with classical signs and symptoms of Crohn's disease: she has a perianal abscess, recurrent abdominal pain and diarrhoea. She appears thin and pale due to anaemia and malabsorption.

Hence, the correct answer is increased goblet cells. This is a characteristical finding of Crohn's disease histology. They are simple columnar goblet-shaped epithelial cells that secrete gel-forming mucins. They increase with Crohn's disease and decrease with ulcerative colitis.

Crypt abscess is a characteristical finding of ulcerative colitis. The epithelium of the crypt breaks down and the lumen fills with polymorphonuclear cells.

An increased risk of primary sclerosing cholangitis is associated with ulcerative colitis.

In Crohn's disease, the inflammation involves all the layers of the bowel, whilst in ulcerative colitis, the inflammation is limited to the submucosa.

Uveitis is most commonly associated with ulcerative colitis, not Crohn's.

Question:

Which one of the following is characteristic of Crohn's disease? (in comparison to ulcerative colitis)

A.Loss of haustrations on barium enema

B.Increased goblet cells

C.Crypt abscesses

D.Abdominal pain in the left lower quadrant

E.Primary sclerosing cholangitis

Answer:Increased goblet cells

Explanation:

Crohn's disease - increased goblet cells

Important for meLess important

Question:

A 67-year-old woman comes for review with her husband. Her husband complains that she is constantly getting up from bed at night and pacing around the bedroom. She complains of 'antsy' legs and a 'horrible, creeping sensation'. Her symptoms generally come on in the evening and are only relieved by moving round. Given the likely diagnosis, what is the most appropriate treatment?

A.Amitriptyline

B.Citalopram

C.Ropinirole

D.Quinine

E.Carbamazepine

Answer:Ropinirole

Explanation:

Restless leg syndrome - management includes dopamine agonists such as ropinirole

Important for meLess important

Question:

A 26-year-old lady who is currently an intravenous drug user presents with a 2-day history of dysphagia. She describes general malaise and fatigue 2 days prior to this episode. On examination, she is pyrexial with extensive swelling of her submental and submandibular lymph nodes. There is pharyngeal oedema and extensive erythema on the floor of her mouth, however, no exudation can be seen on the tonsils and there are no abscesses near the tonsils . You make a note of her poor dentition. Abdominal examination is unremarkable with no splenomegaly. You decide to admit her. A few hours later, she develops stridor and complains of difficulty breathing. Monospot test came back negative and blood tests show a neutrophilia. What is the most likely diagnosis?

A.Infectious mononucleosis

B.Ludwig's angina (Cellulitis at the floor of the mouth)

C.Trauma to the floor of her mouth

D.Tonsillitis

E.Lymphoma

Answer:Ludwig's angina (Cellulitis at the floor of the mouth)

Explanation:

Immunocompromised patients with poor dentition can develop airway compromise from cellulitis at the floor of the mouth known as Ludwig's angina.

Important for meLess important

This patient has Ludwig's angina. This is a cellulitis which occurs on the floor of the mouth of the patient. It is deadly, as it spreads in the fascial spaces of the head and neck. Due to the infection, the swelling that ensues from the inflammation begins to push the floor of the mouth upwards and blocks air entry. This patient has a compromised immune system (IVDU puts one at risk for HIV and henceforth AIDS) and poor dentition which increases one's risk for this condition. Pericoronitis (inflammation surrounding a partially erupted wisdom tooth) can also predispose one to this. Angina comes from the Greek word 'strangling'. Ludwig's angina is not to be confused with angina pectoris, which is a cardiac pathology.

It is not trauma, nothing in the history suggests this is the answer

With the monospot test being negative and absence of splenomegaly, it would be unlikely to be EBV infection.

Lymphoma has a slower progression of around 6 weeks and the lack of B symptoms and normal blood work makes this diagnosis unlikely.

Tonsillitis can cause obstruction of airways. However, there is nothing on examination to suggest the patient has 'kissing tonsils', which are tonsils that meet in the mid-line due to swelling.

Question:

A 78-year-old woman attends the emergency department due to palpitations for the last 3 hours. On examination, the patient appears well. Blood tests are taken and an ECG is performed. The ECG shows U waves, which were not seen on a previous normal ECG.

Na+ 139 mmol/L (135 - 145)

K+ 2.9 mmol/L (3.5 - 5.0)

Urea 6.8 mmol/L (2.0 - 7.0)

Creatinine 101 µmol/L (55 - 120)

Past medical history includes hypertension, type 2 diabetes mellitus, and heart failure. Regular medications include amlodipine, furosemide, and metformin. The patient reports that their furosemide dose was recently increased.

What other ECG change may be seen?

A.P mitrale

B.Prolonged PR interval

C.ST elevation

D.Shortened QT interval

E.Tented T waves

Answer:Prolonged PR interval

Explanation:

Alongside U waves, the following ECG features may be seen in hypokalaemia:

ECG features of hypokalaemia

small or absent T waves (occasionally inversion)

prolong PR interval

ST depression

long QT

Important for meLess important

This scenario describes a 78-year-old woman attending the emergency department with palpitations, likely secondary to hypokalaemia (as demonstrated in the blood results). As eluded to by the stem, the likely cause of the hypokalemia is the increased furosemide dose. Hypokalaemia can show ECG changes, including U waves, small or absent T waves, ST depression, prolonged QT, and prolonged PR interval.

P mitrale is not correct. P mitrale is a change in the P wave where it develops a second peak. This is likely secondary to an enlarged left atrium, which can be caused by increased resistance (such as mitral valve stenosis). It is not seen in hypokalaemia.

ST elevation is incorrect. Whilst hypokalaemia may present with ST depression, ST elevation is not typically seen.

Shortened QT interval is not correct. The QT interval is the space between the start of the Q wave and the end of the T wave. In hypokalaemia, this may become prolonged. This prolongation can increase the risk of Torsades de pointes.

Tented T waves is incorrect. Tented T waves are characteristically associated with hyperkalemia, whereas in hypokalaemia T waves can become small or absent.

Question:

A 53-year-old woman presents to the GP with fatigue. For the past few months, she has felt breathless on exertion.

On examination, she has a heart rate of 102 bpm which is regular and her oxygen saturations are 96%. She has a history of hyperthyroidism and rheumatoid arthritis for which she takes carbimazole and methotrexate.

Blood tests show the following:

Hb 98 g/L (115 - 160)

MCV 108 fL (80-100)

Ferritin 70 ng/mL (20 - 230)

Vitamin B12 396 ng/L (200 - 900)

Folate 1.7 nmol/L (> 3.0)

Reticulocytes 1.1 % (0.5 - 1.5)

TSH 0.8 mU/L (0.5-5.5)

Free T4 9.9 pmol/L (9.0 - 18)

What is the most likely underlying cause of her presentation?

A.Carbimazole

B.Haemolytic anaemia

C.Iron deficiency

D.Methotrexate

E.Undiagnosed coeliac disease

Answer:Methotrexate

Explanation:

Methotrexate therapy may result in a megaloblastic macrocytic anaemia secondary to folate deficiency

Important for meLess important

Methotrexate is correct. This patient has presented with symptoms typical of anaemia, including fatigue and breathlessness on exertion. Her blood tests show that she has macrocytic anaemia most likely due to the low folate level. This results in megaloblastic macrocytic anaemia whereby the red cell volume is large with the contents not fully matured (hence, megaloblasts). This is because folate (and B12) are required for the final steps in red blood cell maturation owing to DNA synthesis. The folate deficiency has resulted from methotrexate therapy to control her past medical history of rheumatoid arthritis as methotrexate inhibits dihydrofolate reductase, which is crucial for folate metabolism.

Carbimazole is incorrect. Whilst this woman could have hypothyroidism from an over-correction of her past medical history of hyperthyroidism, her thyroxine level is normal implying her condition is well controlled. Hypothyroidism causes macrocytic anaemia, however, in this scenario, the anaemia is more likely due to folate deficiency as her hyperthyroidism is controlled.

Haemolytic anaemia is incorrect. If haemolytic anaemia were suspected, her reticulocyte count would be elevated, which is not the case here. The anaemia would also be likely to be normocytic, however, here it is macrocytic.

Iron deficiency is incorrect. Whilst a normal ferritin level cannot rule out iron deficiency, as it is also an acute phase protein that increases with inflammation, iron deficiency results in microcytic anaemia. This woman has macrocytic anaemia, which makes iron deficiency much less likely.

Undiagnosed coeliac disease is incorrect. Although coeliac disease can result in anaemia, it is usually due to iron deficiency from reduced absorption. As previously explained, this causes microcytic anaemia instead of macrocytic anaemia as seen here. If this was suspected, a tissue transglutaminase IgA (tTg-IgA) test should be ordered.

Question:

You are the FY2 on-call and have been asked to review a 65-year-old woman who was admitted 3 days ago with acute myocardial infarction. She now reports chest pain, palpitations, and shortness of breath. She has no features of cardiogenic shock. You ask for a 12-lead ECG, which shows a broad complex tachycardia at a rate of 150bpm.

Given the likely diagnosis, which one of the following medications should be avoided?

A.Verapamil

B.Lidocaine

C.Procainamide

D.Clopidogrel

E.Amiodarone

Answer:Verapamil

Explanation:

Ventricular tachycardia - verapamil is contraindicated

Important for meLess important

This patient is at risk for ventricular tachycardia (VT) given her recent myocardial infarction and is presenting with symptoms consistent with this diagnosis (chest pain, palpitations, and shortness of breath). ECG morphology in VT can be variable, but suggestive features include wide QRS complexes (>120ms) and a rate >100bpm (usually 150-200).

Verapamil, a non-dihydropyridine calcium-channel blocker, works by inhibiting the transmembrane influx of extracellular calcium (needed for muscular contraction) across myocardial cell membranes and vascular smooth muscle cells. This inhibition of cardiac and vascular smooth muscle contraction results in dilatation of the main coronary and systemic arteries. Verapamil also blocks the calcium current responsible for sinus and AV nodal depolarization. In VT, administration of verapamil can precipitate marked haemodynamic deterioration, ventricular fibrillation (VF), and cardiac arrest. In the BNF, the use of verapamil in VT is not listed as a contraindication, but states: 'It [verapamil] should not be used for tachyarrhythmias where the QRS complex is wide (i.e. broad complex) unless a supraventricular origin has been established beyond reasonable doubt.'

Lidocaine, procainamide, and amiodarone can all be used in the management of VT. Lidocaine is a class 1B anti-arrhythmic that acts on sodium channels to inhibit the recovery phase following repolarisation. This results in decreased myocardial excitability and reduced conduction velocity. Lidocaine has been shown to be a less effective anti-arrhythmic in VT compared to amiodarone, and its use in the management VT has declined because of this.

Procainamide is a class 1A anti-arrhythmic. Similarly to lidocaine, it works by inhibiting the recovery phase after repolarisation, resulting in decreased myocardial excitability and conduction velocity. It also prolongs the myocardial action potential and reduces the speed of impulse conduction, which results in decreased myocardial excitability, slowed conduction velocity, and reduced myocardial contractility. Procainamide can be used in the treatment of refractory VT, but its use is limited because of hypotension and pro-arrhythmia risk.

Clopidogrel is an antiplatelet agent that works by inhibiting the adenosine diphosphate (ADP) pathway for platelet aggregation. This patient is likely already on clopidogrel as part of the dual antiplatelet therapy (clopidogrel and aspirin) for secondary prevention post-myocardial infarction. The only contraindication to clopidogrel in the BNF is active bleeding.

Amiodarone is a class III anti-arrhythmic. It works by inhibiting adrenergic stimulation to markedly prolong the action potential and repolarization phase and decreases AV conduction and sinus node function. It can be used in the management of haemodynamically unstable VT alongside synchronised cardioversion or as medical management for haemodynamically stable patients. If medical management fails in a haemodynamically stable patient, cardioversion is indicated.

Remember - pulseless VT, i.e. the patient is in cardiac arrest, should be treated as per the shockable arm of the ALS algorithm.

Question:

A 46-year-old patient is referred for upper endoscopy and biopsy to assess for coeliac disease at the gastroenterology outpatient clinic. She had been referred to the clinic by her GP due to symptoms of lethargy, intermittent loose stools, bloating and iron-deficiency anaemia. The gastroenterologist tells her that the procedure will take place in 7 weeks time.

Which of the following instructions will she be given by the gastroenterology team?

A.Follow bowel preparation leaflet - taking laxatives on the day before and on the day of procedure

B.Avoid consuming any grains for at least 6 weeks before the test

C.Avoid consuming gluten for at least 6 weeks before the test

D.Must consume gluten for at least 6 weeks before the test

E.Avoid food for 12 hours pre-procedure

Answer:Must consume gluten for at least 6 weeks before the test

Explanation:

Patients must eat gluten for at least 6 weeks before they are tested

Important for meLess important

This patient has presented with symptoms and signs that are consistent with coeliac disease. In adult patients, remember that typical symptoms of malabsorption and diarrhoea may not occur and many diagnoses are formed on the findings of vague symptoms with or without iron-deficiency anaemia. Therefore, she has been referred by the gastroenterologist for the gold-standard test: an upper endoscopy with biopsies of the duodenum/jejunum. In order to see the typical villous atrophy on biopsy, the inflammation must be ongoing and therefore the patient must have been consuming gluten for at least 6 weeks. If gluten is not consistently consumed the biopsy findings may be normal or less convincing and the patient may have to undergo the endoscopy again unnecessarily to confirm the diagnosis. Therefore all patients will be given the advice to consume gluten 6 weeks prior to endoscopy. Note that this is also the case for assessing coeliac antibodies (usually anti-tissue transglutaminase antibodies). To avoid a false negative result, patients must also consume gluten prior to testing. Thereafter, the antibody test may be used for monitoring adherence to the diet.

For an OGD, the patient does not require bowel preparation as the colon is not being explored and (as such) this is an unnecessary procedure for the patient. If the patient were to have a combined OGD and colonoscopy, the patient would be required to take bowel preparation.

If the patient does not consume any grains prior to the test, there will be no gluten in the diet and a risk of a false-negative result.

If the patient does not consume gluten prior to the test, there will be a risk of a false-negative result.

The patient should be counselled to avoid food for 6 hours pre-procedure to avoid aspiration of food content during the procedure while sedated (and to allow a clearer picture). Avoiding food for 12 hours is unnecessarily long to fast for an OGD.

Question:

A 57-year-old man, with a background history of acromegaly, presents with a red, hot, painful and swollen right knee. He says this occurred over the last 3 days, he is apyrexial. He was fit and well before this occurred. His past medical history includes acromegaly which he takes octreotide monthly. He does not take any diuretics. A joint aspirate is performed and an x-ray is taken. The X-ray shows chondrocalcinosis. What would you expect to find on joint fluid microscopy?

A.Negatively birefringent rhomboid-shaped crystals

B.Negatively birefringent needle-shaped crystals

C.Weakly positive birefringent needle-shaped crystals

D.Weakly positive birefringent rhomboid-shaped crystals

E.Gram-positive cocci in clusters

Answer:Weakly positive birefringent rhomboid-shaped crystals

Explanation:

Acromegaly patients can develop pseudogout

Important for meLess important

Chondrocalcinosis is a feature of pseudogout. Acromegaly patients have a higher risk of developing this condition. The crystals are weakly positively birefringent rhomboid-shaped crystals.

Negatively birefringent rhomboid-shaped crystals are not known as a cause of crystal arthropathy.

Negatively birefringent needle-shaped crystals are for urate crystals which are gout crystal arthropathy.

Weakly positive birefringent needle-shaped crystals are not known as a cause of crystal arthropathy.

Gram-positive cocci in clusters would be expected if this patient had septic arthritis, however, he would have other signs of systemic inflammation such as a fever. The stem states he is apyrexial.

Question:

A 22-year-old woman attends the emergency department with a 1-day history of photophobia and hand clumsiness. Her colleagues have noticed her having difficulty finding words for the past 2 weeks, but she has not noticed this herself. She had a dry cough 2 weeks ago, which has resolved. She has no past medical history, no regular medications, and no known allergies.

Examination elicits some double vision when assessing the left peripheral visual field. There are no other remarkable examination findings. Limited fundoscopy is performed due to her photophobia which shows blurring of the optic disc margin and venous engorgement.

What should now be performed?

A.Administer acetazolamide

B.Administer broad-spectrum antibiotics

C.Blood cultures

D.CT head

E.Lumbar puncture

Answer:CT head

Explanation:

Papilloedema indicates raised intracranial pressure and thus would contraindicate an LP

Important for meLess important

This patient is presenting with symptoms that could indicate a space-occupying lesion. She has multiple neurological symptoms consistent with this - hand clumsiness, difficulty word-finding, with new symptoms of acute photophobia. Examination findings of double vision and papilloedema on fundoscopy support a potential diagnosis of a space-occupying lesion. She should have an urgent CT head (alternatively MRI head if this was available) and referral to neurosurgeons. If the CT head does not show evidence of a space-occupying lesion or anything to cause increased intracranial pressure, she can be considered for a lumbar puncture.

Acetazolamide is a carbonic anhydrase inhibitor that is used in idiopathic intracranial hypertension (IIH) to reduce the rate of CSF production and, therefore, decrease intracranial pressure. As this patient has symptoms that are more consistent with a space-occupying lesion than IIH, this option is incorrect. IIH would be more likely to be found in patients presenting with headaches, tinnitus, rapid weight gain, and neck stiffness.

Broad-spectrum antibiotics would be appropriate if the patient were suspected to be septic with the photophobia occurring secondary to meningitis. This patient does not appear to have any infective symptoms, with her report of a cough which has now resolved being a red herring.

Blood cultures should be sent if the patient is suspected to be septic, however, this patient does not have any infective symptoms and, therefore, should be investigated with a CT head to assess for any lesions causing mass effect without delaying to take blood cultures.

Lumbar puncture is contraindicated in patients with raised intracranial pressure (as seen on the fundoscopy findings), this is due to the risk of cerebral herniation.

Question:

A 76-year-old man with a past medical history of hypertension, type 2 diabetes and Alzheimer's dementia is brought to his local district general hospital by his son, who is concerned that his father has become short of breath and distressed over the last few hours.

No history is obtainable from the patient due to his Alzheimer's dementia.

His chest x-ray appears clear. Vital signs are all within normal limits other than a slight tachycardia at 102bpm.

An ECG shows a left bundle branch block. This is not seen on a previous ECG from last year.

His admission blood samples were insufficient so are being re-taken now.

How should this patient be managed?

A.Discharge with safety netting advice and general practitioner follow up

B.Monitor the patient whilst waiting for his blood results

C.Treat empirically for sepsis

D.Treat for non-ST-elevation myocardial infarction and admit to cardiology

E.Urgently contact the nearest primary percutaneous coronary intervention centre

Answer:Urgently contact the nearest primary percutaneous coronary intervention centre

Explanation:

New LBBB is always pathological and never normal

Important for meLess important

This patient is experiencing an ST-elevation myocardial infarction evidenced by the new left bundle branch block on the ECG.

'Urgently contact the nearest primary percutaneous coronary intervention centre' is correct. This patient has a left bundle branch block which is found to be new. With the compatible history, the patient needs to be managed as an ST-elevation myocardial infarction. If the patient is not already in a primary percutaneous coronary intervention centre, ST-elevation myocardial infarctions require urgent discussion with the nearest unit and patient transfer by blue light ambulance.

'Discharge with safety netting advice and general practitioner follow up' is incorrect. This patient is likely experiencing an ST-elevation myocardial infarction and requires urgent treatment.

'Monitor the patient whilst waiting for his blood results' is incorrect. There has already been a delay with this patients blood results. Primary percutaneous coronary intervention needs to be performed within 2 hours of presentation to reduce mortality. Regardless of the blood results, the patient has a new left bundle branch block on his ECG and therefore requires urgent treatment.

'Treat empirically for sepsis' is incorrect as the patient is not scoring for sepsis on his observations. His history and ECG findings are more compatible with an ST-elevation myocardial infarction.

'Treat for non-ST-elevation myocardial infarction and admit to cardiology' is incorrect. The new left bundle branch block suggests an ST-elevation myocardial infarction rather than a non-ST-elevation myocardial infarction. Non-ST-elevation myocardial infarction may produce ECG changes such as ST-depression or T wave inversion. A normal ECG may also be seen.

Question:

A 25-year-old man is seen in clinic with 5 unprovoked episodes of rapid bilateral upper and lower limb muscle contraction and relaxation that last around 10 seconds before stopping. These episodes cause him to fall to the floor; however, he denies any loss of consciousness and is able to continue doing his activities after. A collateral history is taken, and it is established that no incontinence or tongue biting occurs.

There is no history of head trauma.

Given the likely diagnosis, what is this patient most likely to be started on?

A.Ethosuximide

B.Lamotrigine

C.Levetiracetam

D.Sodium valproate

E.Topiramate

Answer:Sodium valproate

Explanation:

Myoclonic seizures: sodium valproate is first-line for males

Important for meLess important

This patient has presented with bilateral upper and lower limb contracting and relaxing, known as clonus. Myoclonic epilepsy is the most likely diagnosis when there is no loss of consciousness, incontinence, tongue-biting, or a post-ictal period characterised by fatigue.

Sodium valproate is correct as it is first-line for males, as high-quality evidence has demonstrated its efficacy for this use. Due to its teratogenic effects, it is contraindicated in women with childbearing potential.

Ethosuximide is incorrect. This would be appropriate if the patient had absence seizures, which present as episodes of staring blankly into space and being unresponsive, which are not seen here. Absence seizures are also typically seen in children aged 3–10 years, and most patients become seizure free in adolescence.

Lamotrigine is incorrect, as it is a third-line treatment option for myoclonic seizures in men where sodium valproate and levetiracetam have been unsuccessful. Given that this patient has not yet had any treatment and is male, it would be most appropriate to try the first-line option.

Levetiracetam is incorrect. This is the second-line option for men and the first-line option for women of childbearing potential. This difference is because sodium valproate is the first-line drug for men but is associated with teratogenicity; therefore, it is avoided in women of childbearing potential, making levetiracetam the first-line choice for women. If this male patient were to have tried sodium valproate and it was unsuccessful, this option would be appropriate.

Topiramate is incorrect. This is another third-line option for managing myoclonic epilepsy in men where sodium valproate and levetiracetam have failed. Since this patient has not yet had any treatment, the first-line option would be most appropriate.

Question:

A 36-year-old man is admitted with an acute episode of mania. He is initially treated with haloperidol which seems to improve his mental state. Later that day he develops a high fever, tachycardia, tachypnoea and muscle rigidity.

Which drug may be beneficial in the treatment of this patient?

A.Quetiapine

B.Metoclopramide

C.Granulocyte colony stimulating factor (G-CSF)

D.Raclopride

E.Bromocriptine

Answer:Bromocriptine

Explanation:

The clinical features are highly suggestive of neuroleptic malignant syndrome. Bromocriptine is a dopamine agonist that has been shown to be beneficial in patients with neuroleptic malignant syndrome.

Question:

A 64-year-old man with a 40-pack-year smoking history presents with a 3-month history of a severe chronic cough and 5kg in weight loss. He is sent to the hospital for further investigations. You suspect a diagnosis of lung cancer.

What finding on a blood test would support this?

A.Raised erythrocytes

B.Raised lymphocytes

C.Raised platelets

D.Reduced lymphocytes

E.Reduced platelets

Answer:Raised platelets

Explanation:

Raised platelets can be an indicator of lung cancer

Important for meLess important

This patient has presented with signs of lung cancer; raised platelets can indicate this and therefore this is the correct answer.

Raised erythrocytes would suggest primary polycythaemia (polycythaemia vera) or secondary polycythaemia (seen in eg chronic obstructive pulmonary disease or chronic kidney disease).

Raised lymphocytes would suggest infection - the weight loss in this patient, along with old age and smoking history, makes malignancy more likely than pneumonia.

Reduced lymphocytes or platelets would suggest a malignancy more haematological in nature as opposed to pulmonary.

Question:

A 56-year-old woman presented to her general practice with persistent polydipsia and swollen legs over the past few months. She mentioned her past medical history includes chronic obstructive pulmonary disease (COPD), schizophrenia, and hypertension. Her regular medications are tiotropium inhaler, ipratropium bromide inhaler, olanzapine, and nifedipine. She was previously on bendroflumethiazide which has been ceased for 2 years and was started on a 5-day course of 30mg oral prednisolone half a year ago due to exacerbation of her COPD. Her fasting blood tests results shows:

Fasting plasma glucose 7 mmol/L (3.9-5.4)

Random plasma glucose 12 mmol/L (<7.8)

Which medication could be the likely cause of her deranged blood result?

A.Prednisolone

B.Olanzapine

C.Ipratropium bromide

D.Bendroflumethiazide

E.Nifedipine

Answer:Olanzapine

Explanation:

Metabolic side effects of antipsychotics include dysglycaemia, dyslipidaemia, and diabetes mellitus

Important for meLess important

Antipsychotics have metabolic side effects of dyslipidaemia, weight gain, and increased glucose tolerance. In this scenario, the patient has developed type 2 diabetes due to persistent hyperglycaemia in both fasting blood tests and the HBA1c tests. Based on NICE guidelines, type 2 diabetes is diagnosed in a patient if they have an abnormal test result and symptoms, which are present in this case. This patient has schizophrenia and has been taking olanzapine as her regular medication. This would be the most likely cause of her polydipsia over the past few months. Although this patient has developed swollen legs over the past few months as well, this is likely caused by nifedipine. This question is asking about the cause of her deranged blood result which is due to type 2 diabetes.

Steroids can increase blood glucose levels, and a prolonged course of high-dose steroids can increase the risk of developing diabetes. It can also lead to weight gain and dyslipidemia. However, she only had a 5-day course of prednisolone and it was given half a year ago, thus it is unlikely the cause of her diabetes in this scenario.

Ipratropium bromide is unlikely to increase the blood sugar level, hence it is unlikely to be the correct answer in this scenario. The common side effects are arrhythmias, constipation, cough, dizziness, dry mouth, headache and nausea.

Thiazide diuretics can increase blood sugar levels but it has been stopped for 2 years, hence it is unlikely the cause of her diabetes in this scenario. Other metabolic side effects include hypomagnesemia, hypokalemia, dyslipidemia and hyperuricemia.

Nifedipine is unlikely to increase the blood sugar level, hence it is unlikely to be the correct answer in this scenario. The common side effects of a calcium channel blocker include peripheral oedema, drowsiness, dizziness, palpitation and flushing.

Question:

A 32-year-old woman presents to your GP practice experiencing excessive nausea and vomiting. She is 10-weeks pregnant. She states that she can keep down liquids and meals and has not lost any weight. However, is finding that these symptoms are affecting her daily life. She has not tried any medications to control these symptoms.

What treatment would you recommend?

A.Admission to hospital

B.Metoclopramide

C.Ondansetron

D.Paracetamol

E.Promethazine

Answer:Promethazine

Explanation:

Antihistamines are first-line in the management of nausea & vomiting in pregnancy/hyperemesis gravidarum

Important for meLess important

Promethazine is correct. This patient is experiencing nausea and vomiting during pregnancy. The first-line treatment for nausea and vomiting of pregnancy or hyperemesis gravidarum are antihistamines. Promethazine is a type of antihistamine and so this is the correct answer.

Admission to hospital is incorrect. Admission to a hospital is only required in certain situations. For example, in patients who, despite treatment with anti-emetics, are unable to keep fluids down or have lost >5% of their pre-pregnancy weight. These situations do not apply in this scenario and are therefore incorrect.

Ondansetron and metoclopramide are incorrect. These are both second-line treatment options for nausea and vomiting of pregnancy. Antihistamines should be trialled first.

Paracetamol is incorrect. This is an analgesic drug and so is not a treatment for this patient's symptom of nausea and vomiting.

Question:

A 34-year-old, G2P1, is referred to the obstetrics assessment unit by her general practitioner for mild abdominal pain and vaginal bleed. She is 15 weeks pregnant.

Which one of the following in her history might make you worry about a miscarriage?

A.Exercise

B.Primigravid

C.Previous Caesarian section

D.Large cervical cone biopsy

E.Sexual intercourse

Answer:Large cervical cone biopsy

Explanation:

Large cervical cone biopsy is a risk factor for 2nd-trimester miscarriage

Important for meLess important

Risk factor Information

Age Women older than age 35 have a higher risk of miscarriage than do younger women. At age 35, you have about a 20 percent risk. At age 40, the risk is about 40 percent. And at age 45, it's about 80 percent.

Previous miscarriages Women who have had two or more consecutive miscarriages are at higher risk of miscarriage.

Chronic conditions Women who have a chronic condition, such as uncontrolled diabetes, have a higher risk of miscarriage.

Uterine or cervical problems Certain uterine abnormalities (Mullerian duct anomalies, large cervical cone biopsies)

Smoking, alcohol and illicit drugs Women who smoke during pregnancy have a greater risk of miscarriage than do nonsmokers. Heavy alcohol use and illicit drug use also increase the risk of miscarriage.

Weight Being underweight or being overweight has been linked with an increased risk of miscarriage.

Invasive prenatal tests Some invasive prenatal genetic tests, such as chorionic villus sampling and amniocentesis, carry a slight risk of miscarriage.

The rest of the options are not risk factors for 2nd-trimester miscarriage.

Question:

A 38-year-old lady presents with a recent episode of renal colic. As part of her investigations the following results are obtained:

Corrected Calcium 3.84 mmol/l

PTH 88pg/ml (increased)

Her serum urea and electrolytes are normal.

What is the most likely diagnosis?

A.Carcinoma of the bronchus

B.Secondary hyperparathyroidism

C.Primary hyperparathyroidism

D.Tertiary hyperparathyroidism

E.Carcinoma of the breast

Answer:Primary hyperparathyroidism

Explanation:

In this situation the most likely diagnosis is primary hyperparathyroidism. The question mentions that serum urea and electrolytes are normal, which makes tertiary hyperparathyroidism unlikely.

Question:

A 45-year-old female is being seen in the gastroenterology clinic. She has been complaining of acid reflux for the last 4 months. Additionally, she mentions problems with swallowing both solids and liquids which came on around the same time. Her husband has commented that her breath is not good. She reports some weight loss due to struggling to swallow, however she feels generally fit and healthy. She reports no vomiting or melaena. She drinks 4 units of alcohol a week.

The gastroenterologist suspects a diagnosis of achalasia.

What surgical treatment is used for this condition?

A.Gastrectomy

B.Heller cardiomyotomy

C.Nissen fundoplication

D.Oesophageal stent

E.Whipple procedure

Answer:Heller cardiomyotomy

Explanation:

Surgical treatment of achalasia - Heller cardiomyotomy

Important for meLess important

Achalasia is a disorder of the lower oesophageal sphincter where the opening becomes dysfunctional leading to problems of the passage of food and drink into the stomach. This leads to problems with swallowing and reflux. The dysphagia tends to affect both solids and liquids equally.

Achalasia is treated using a surgical procedure called a Heller cardiomyotomy. This procedure involves cutting of the thick muscle around the lower oesophagus and upper stomach to allow for passage of food and drink.

A gastrectomy is the partial or total removal of the stomach. This is used for problems within the stomach such as gastric cancers or severe peptic ulceration.

A Nissen fundoplication is a surgical procedure used to strengthen and tighten the lower oesophageal sphincter in patients suffering from severe gastro-oesophageal reflux disease (GORD).

An oesophageal stent is a small metal or plastic tube placed inside the oesophagus to help allow the passage of food and drink. This would be used when the oesophagus is narrowed due to obstructions such as tumours.

A Whipple procedure is a surgical procedure used for the treatment of pancreatic cancers. It removes the head of the pancreas, the duodenum, the gallbladder and the bile duct.

Question:

A 55-year-old business man presents with a 15 day history of watery, non-bloody diarrhoea associated with anorexia and abdominal bloating. His symptoms started 4 days after returning from a trip to Pakistan. On examination he is apyrexial with dry mucous membranes but normal skin turgor. What is the most likely causative organism?

A.Salmonella

B.Giardia lamblia

C.Shigella

D.Escherichia coli

E.Norovirus

Answer:Giardia lamblia

Explanation:

Although Escherichia coli is the most common cause of travellers' diarrhoea, in this particular case the length of illness and nature of symptoms (bloating, watery diarrhoea) points to a diagnosis of Giardiasis.

Question:

A 72-year-old man attends an appointment with his GP to discuss the burning feeling he gets in his right leg when walking. The pain only comes on during exertion and is always relieved by rest. He has a past medical history of hypertension and has had 2 myocardial infarctions. He takes ramipril, amlodipine, aspirin, and atorvastatin. He lives with his wife and has a 20-pack-year smoking history.

An ECG shows a normal sinus rhythm. The ankle-brachial pressure index in the right leg is 0.67.

Given the most likely diagnosis, after smoking cessation advice and optimisation of hypertension management, what is the most appropriate initial recommendation for this patient?

A.Commencement of naftidrofuryl oxalate

B.Exercise training

C.Referral for amputation

D.Referral for angioplasty

E.Referral for bypass surgery

Answer:Exercise training

Explanation:

Exercise training has been shown to be beneficial in peripheral arterial disease

Important for meLess important

This patient's symptoms and ankle-brachial pressure index (ABPI) are in keeping with a diagnosis of peripheral vascular disease. Lifestyle modifications such as weight loss, smoking cessation and diet are very important in the first instance. Patients should be offered smoking cessation service referral and management of comorbidities should be optimised (blood pressure, cholesterol and diabetes control). Aspirin would be given to a patient with peripheral arterial disease, however, this patient is already taking aspirin due to a previous myocardial infarction. The correct answer alongside these measures is exercise training. This is recommended by NICE having been shown to be beneficial in peripheral arterial disease. NICE recommend an exercise programme before starting other treatment. Exercise therapy works by inducing angiogenesis and mitochondrial synthesis which improves oxygen delivery within the affected limb.

Naftidrofuryl oxalate is a vasodilator drug used in the treatment of peripheral arterial disease however exercise training should be recommended first.

Angioplasty is a treatment for severe peripheral arterial disease or critical limb ischaemia. This patient has an ABPI of 0.67 which suggests intermittent claudication. Critical limb ischaemia usually has an ankle-brachial pressure index of <0.5. Angioplasty involves the use of stents to open up a blocked artery.

Amputation is a last resort for irreversible limb ischaemia.

Bypass surgery is also a potential treatment for critical limb ischaemia. This involves rerouting the blood supply in the affected limb to avoid a blockage in an artery. Surgical options would be used if conservative management, such as exercise training, failed.

Question:

A 17-year-old patient is brought into the emergency department by her friends at 3 am, following an evening out. Her friends are concerned as she is sweating profusely and is extremely confused. They also mention she has become jerky and rigid over the last hour. On further questioning, they admit the patient has used recreational drugs.

On examination, she is disorientated and has a temperature of 38.4ºC.

Her past medical history consists of depression and hypothyroidism for which she takes fluoxetine and levothyroxine.

Given the likely diagnosis, what is likely to have precipitated this presentation?

A.Cannabis

B.Cocaine

C.Heroin

D.MDMA

E.Paracetamol

Answer:MDMA

Explanation:

SSRIs + MDMA = higher risk of serotonin syndrome

Important for meLess important

MDMA is correct. This patient is presenting with a likely diagnosis of serotonin syndrome. The patient is prescribed an SSRI (fluoxetine) and so when you combine this with the symptoms she is experiencing- hyperthermia, confusion, muscle rigidity, myoclonus, you should suspect serotonin syndrome. MDMA is an illegal substance known to increase the risk of serotonin syndrome. Of all the drugs mentioned, this is the only drug known to increase the risk of serotonin syndrome and therefore the correct answer.

Cannabis, cocaine, heroin and paracetamol are all incorrect. None of these drugs are known to increase the risk of serotonin syndrome and are therefore incorrect. Other drugs that do increase the risk of serotonin syndrome are St. Johns Wort, monoamine oxidase inhibitors, tramadol, SSRIs, and amphetamines.

Question:

A 36-year-old woman is brought to the emergency department with severe abdominal pain, vomiting and confusion, which began 2 hours ago. She is agitated and describes auditory hallucinations. The patient had two seizures before she arrived at the hospital.

She has a past medical history of depression and recurrent UTI, and she has recently been prescribed sertraline and a course of nitrofurantoin.

She has a heart rate of 160bpm, blood pressure of 180/110mmHg and is hypo-reflexive.

A urine sample is sent to the lab for analysis and noted to have turned a deep red on standing.

What is the most likely diagnosis?

A.Acute intermittent porphyria

B.Porphyria cutanea tarda

C.Serotonin syndrome

D.Stimulant drug overdose

E.Thrombotic thrombocytopenic purpura (TTP)

Answer:Acute intermittent porphyria

Explanation:

In acute intermittent porphyria, the urine classically turns deep red on standing

Important for meLess important

Acute intermittent porphyria is correct. Acute intermittent porphyria is a deficiency of one of the enzymes needed to synthesise haem. The subsequent build-up of haem precursors can cause acute attacks of severe abdominal pain (often accompanied by vomiting), hypertension and tachycardia. Severe cases result in psychiatric symptoms (anxiety, confusion, hallucinations) and neurological manifestations (seizures, muscle weakness and areflexia). Classically, urine fluoresces a bright red colour on standing. There are many potential triggers of acute intermittent porphyria. Nitrofurantoin is a drug that commonly precipitates an acute attack and is likely implicated in this patient's presentation, as it has been used to treat recurrent UTIs.

Porphyria cutanea tarda is incorrect. Porphyria cutanea tarda is the most common form of porphyria but presents with cutaneous symptoms such as a photosensitive rash, easy scarring, tense deep blisters or keratin cysts, particularly in areas of sun exposure. It does cause red-pink urine discolouration on standing, but it wouldn't cause acute attacks of abdominal pain or psychiatric/neurological symptoms.

Serotonin syndrome is incorrect. Serotonin syndrome classically presents with tachycardia, hypertension and agitation but usually causes hyperreflexia, whereas this patient has diminished reflexes. This patient would be at risk for serotonin syndrome as she is taking sertraline, but there is no suggestion of overdose, and nitrofurantoin doesn't increase the risk of serotonin syndrome in these individuals. Serotonin syndrome would not explain the red urine.

Stimulant drug overdose is incorrect. The presentation can look similar due to symptoms of tachycardia, hypertension, agitation, psychosis and seizures but stimulant drug (e.g. cocaine or methamphetamine) overdose would not usually present with deep red urine discolouration.

Thrombotic thrombocytopenic purpura is incorrect. TTP typically presents a pentad of neurological symptoms, renal dysfunction, fever, haemolytic anaemia and thrombocytopenia. These patients are likely to be jaundiced with evidence of bleeding into the skin/mucous membranes and would be unlikely to present with psychiatric manifestations, abdominal pain/vomiting or red urine.

Question:

A 47-year-old man presents to his GP with a consistent headache. He describes it as constant dull pain, worse in the afternoons. It has been there almost every day for the past month and a half.

He has been taking paracetamol and codeine four times a day for mechanical back pain following an injury at work 2 months ago.

Given the most likely diagnosis, what is the most appropriate management?

A.Reduce frequency of codeine and paracetamol usage

B.Start ibuprofen

C.Stop both codeine and paracetamol

D.Stop both codeine and paracetamol, start ibuprofen

E.Stop paracetamol immediately, withdraw codeine slowly

Answer:Stop paracetamol immediately, withdraw codeine slowly

Explanation:

Medication overuse headache

simple analgesia + triptans: stop abruptly

opioid analgesia: withdraw gradually

Important for meLess important

This man likely presents with a medication overuse headache given his high use of painkillers over the past 2 months. The best treatment for the pain, counterintuitively, is to withdraw the analgesia that is causing the headache. Paracetamol can be stopped abruptly, as there are unlikely to be withdrawal symptoms when stopping this. Codeine needs to be withdrawn gradually since it is an opiate, and abrupt withdrawal is likely to lead to harsh withdrawal symptoms. The correct answer here is therefore to stop paracetamol immediately and withdraw codeine slowly.

Reduce frequency of codeine and paracetamol usage is incorrect. It would be more appropriate to completely stop paracetamol.

Starting ibuprofen is incorrect. This may be appropriate to use as temporary analgesia if all analgesia has had to be stopped due to a medication overuse headache.

Stopping both codeine and paracetamol is incorrect. Whilst paracetamol should be stopped immediately, codeine should not be stopped abruptly.

Stopping both codeine and paracetamol and starting ibuprofen is incorrect. Whilst substituting the medication causing the medication overuse headache for ibuprofen may be appropriate, codeine should not be stopped abruptly.

Question:

A mother brings her 9-year-old daughter into surgery. She has been having recurrent headaches. Which one of the following features of migraine is more common in children?

A.Prolonged migraines (e.g. 24-48 hours)

B.Strictly unilateral symptoms

C.Hemiplegia

D.Good response to metoclopramide

E.Gastrointestinal disturbance

Answer:Gastrointestinal disturbance

Explanation:

Nausea, vomiting and abdominal pain are common in children with migraine.

Question:

A 50-year-old Caucasian man is found to have blood pressure measurements of 150/100mmHg, 148/95mmHg and 160/95mmHg on three consecutive visits to his GP surgery. He declines ambulatory blood pressure monitoring as it will interfere with his work as a window cleaner. Home blood pressure readings are consistently above 150/95mmHg.

What is the best initial management?

A.Amlodipine

B.Bendroflumethiazide

C.Indapamide

D.Lifestyle advice only

E.Ramipril

Answer:Ramipril

Explanation:

Newly diagnosed patient with hypertension (< 55 years) - add an ACE inhibitor or an angiotensin receptor blocker

Important for meLess important

This patient has stage 2 hypertension (Clinic blood pressure is 160/100 mmHg or higher and subsequent ambulatory blood pressure daytime average or home blood pressure monitoring average blood pressure is 150/95 mmHg or higher).

The nice guidelines advise that antihypertensive drug treatments should be offered to people of any age with stage 2 hypertension.

According to the NICE guidelines, persons below the age of 55 should be started on an ACE inhibitor or an angiotensin receptor blocker. Those 55 and older should be started on a calcium channel blocker, such as amlodipine.

Question:

A 4-year-old boy is reviewed in the Paediatric Admissions Unit. He has had a fever for the past week. On examination he has red, sore lips and conjunctival injection. He also has swollen, red hands. Blood tests show:

Hb 13.1 g/dl

WBC 12.7 \*109/l

Platelets 520 \*109/l

CRP 96 mg/L

What is the likely diagnosis?

A.Rheumatic fever

B.Dermatomyositis

C.Lyme disease

D.Still's disease

E.Kawasaki disease

Answer:Kawasaki disease

Explanation:

High fever lasting >5 days, red palms with desquamation and strawberry tongue are indicative of Kawasaki disease

Important for meLess important

Question:

An 18-year-old man is reviewed in the clinic with a 3-month history of episodic confusion. He experiences episodes of becoming unaware of his surroundings, during which bystanders report he smacks his lips, plucks his clothes and does not respond to speech. Each episode is preceded by a feeling of rising in his stomach and lasts for 3 minutes before resolving, after which he feels tired. He has a past medical history of febrile convulsions when he was a child.

Given the likely diagnosis, what is the most appropriate first-line treatment option?

A.Ethosuximide

B.Lamotrigine

C.Phenytoin

D.Sodium valproate

E.Topiramate

Answer:Lamotrigine

Explanation:

Focal seizures: lamotrigine or levetiracetam are first-line

Important for meLess important

This patient has signs and symptoms consistent with epilepsy characterised by focal seizures emerging in the temporal lobe due to repeated episodes of automatism (lip smacking and plucking), aura (epigastric rising), with impaired awareness with no other apparent underlying cause, followed by a post-ictal period characterised by tiredness. The history of febrile convulsions (seizures provoked by fever in otherwise normal young children which often resolve as children grow up) also supports a diagnosis of epilepsy as it is a risk factor for its development.

Lamotrigine is correct. In patients with focal seizures, the first-line treatment options are lamotrigine, as the evidence demonstrates it is the most effective.

Topiramate is incorrect. This is an add-on option for treating focal seizures if first-line monotherapy options (lamotrigine or levetiracetam) are unsuccessful. Given that this patient has not yet trialled first-line treatment, it would be more appropriate to try that option before trying topiramate, as lamotrigine has been demonstrated to be more effective in focal seizures.

Ethosuximide is incorrect. This is the first-line option for managing absence seizures, which tend to present in younger children aged 3-10 years. Around 90% of children become seizure-free in adolescence. Although absence seizures may have some automatism, such as lip smacking, episodes generally last a few seconds and are associated with a quick recovery.

Phenytoin is incorrect. Due to its many associated side effects and drug interactions, phenytoin is generally avoided as a first-line measure in managing epilepsy unless other measures have failed. Given that this patient has not yet tried any treatment, the most appropriate option would be to give the first-line option, which is lamotrigine.

Sodium valproate is incorrect. This third-line option may be tried if first-line measures (including lamotrigine) and second-line measures (such as carbamazepine) have not been successful. Given that this patient has not yet tried any treatment, the most appropriate option would be to give the first-line option, which is lamotrigine.

Question:

An 18 year old man is brought into the Emergency Department after being injured in a pub-brawl. He complains of abdominal pain. On examination the abdomen is bruised and tender. His heart rate is 136 beats per minute and blood pressure is 72/54mmHg. Which fluid would be most suitable for resuscitation?

A.500 mls of Gelofusin over 15 minutes

B.500 mls 0.9% Sodium Chloride over 15 minutes

C.500 mls of Plasmalyte over 30 minutes

D.500 mls 10% dextrose over 15 minutes

E.500 mls Hypertonic saline over 15 minutes

Answer:500 mls 0.9% Sodium Chloride over 15 minutes

Explanation:

For resuscitation, the NICE guidelines advocate a crystalloid that contain sodium in the range 130 to 154 mmol/l, with a bolus of 500 ml over no more than 15 minutes.

Gelofusine contains 154mmol/L of sodium but is a colloid, invalidating this option.

10% dextrose contains no sodium, invalidating this option.

Hypertonic salines contain sodium at a concentration greater than 154mmol/l, invalidating this option.

Plasmalyte contains 140 mmol/l of sodium so would be an option but not at the rate offered here.

Question:

A 62-year-old male returns to your clinic for a review of his diabetes, which is poorly controlled, despite his multi-drug regime. Upon discussion with him, you decide to commence pioglitazone.

Which of the following is a classical side effect of this drug that he should be counselled about?

A.Weight loss

B.Increased risk of fractures

C.Vomiting

D.Lactic acidosis

E.Injection-site reaction

Answer:Increased risk of fractures

Explanation:

Glitazones - associated with fractures

Important for meLess important

Pioglitazone is a thiazolidinedione (also called the glitazones), which acts by reducing resistance to insulin, thus lowering blood glucose. It is a PPAR-γ agonist.

It's classical side effects are: weight gain (rather than loss); fluid retention; liver dysfunction; and associated fractures.

It is metformin that has the classical risk of lactic acidosis and gastric disturbances (diarrhoea rather than vomiting most commonly).

Pioglitazone is not a subcutaneous medication, so would not have injection-site reactions.

Question:

You are a female F2 working on your General Practice rotation. In your morning clinic, you have an elderly male patient with whom you have built up a good rapport over the last two months, you have been offering him support as he's finally coming to terms with his wife dying 12 months ago. During you consultation, you review his progress and exchange general pleasantries, he is very appreciative of your work as usual. On seeing the patient out of the door, the patient leans in to kiss you on the cheek. What is the best response?

A.Allow a simple kiss on the cheek as it might affect your rapport otherwise

B.Allow a kiss on the cheek but ask advice from your supervising GP afterwards

C.Step back and delicately explain such behaviours are inappropriate between a doctor and a patient

D.Ask the patient to leave and inform the practice manager, demanding he be removed from the patient register

E.Allow a kiss on the cheek but ask the receptionists not to book him onto your clinics again

Answer:Step back and delicately explain such behaviours are inappropriate between a doctor and a patient

Explanation:

Although a difficult situation to find oneself in, option 3 is the best action to take as you should reiterate your professional role and make sure there are clear boundaries between you and the patient as it states in the GMC guidance referenced below, 'If a patient pursues a sexual or improper emotional relationship with you, you should treat them politely and considerately and try to re-establish a professional boundary'. For this reason, option 1 is incorrect, as is option 2 although seeking advice from a senior is always a good idea if you are unsure. Option 4 is an overreaction at this stage as this is the first time this has occurred and could perhaps be a simple misunderstanding between you and the patient. Option 5 is incorrect as a relationship should only be discontinued between a doctor and a patient when there is a breakdown of trust to the point where you cannot provide adequate care.

GMC - Maintaining a professional boundary between you and your patient (2013)

http://www.gmc-uk.org/guidance/ethicalguidance/21170.asp

Question:

An 83-year-old gentleman is seen in falls clinic following multiple minor falls over a period of 4 months. The falls were not associated with any head injury and were associated with the patient's 'knees giving way' suddenly.

The patient describes occasional brief episodes of dizziness upon head movements, especially when looking up, which have contributed to some of his falls.

He has a past medical history of a transient ischaemic attack (TIA) 3 years previously, stable angina and benign prostatic hyperplasia (BPH).

His current regular medications include clopidogrel, atorvastatin and doxazosin.

On examination, full neck extension recreated his dizziness. Neurological examination was completely normal.

What is the most likely diagnosis?

A.Benign paroxysmal positional vertigo (BPPV)

B.Postural hypotension

C.Vertebrobasilar ischaemia

D.Chronic subdural haemorrhage

E.Vestibular neuronitis

Answer:Vertebrobasilar ischaemia

Explanation:

Elderly patient dizzy on extending neck - vertebrobasilar ischaemia

Important for meLess important

The diagnosis which explains the symptoms exhibited by the patient is vertebrobasilar ischaemia. The description of vertigo upon neck extension is characteristic for this condition and often results in falls in elderly patients. The patient clearly has existing cardiovascular disease, which is a risk factor for this condition - atherosclerosis in the vertebrobasilar distribution is exacerbated by changes in head position, causing ischaemia and resultant symptoms.

A - BPPV does causes vertigo upon head movement, but the characteristic production of symptoms on neck extension makes this a less likely diagnosis than vertebrobasilar ischaemia.

B - the patient is taking doxazosin for BPH which can cause postural hypotension, however, the nature of the falls is not supported by this diagnosis (more likely to be caused by going from lying/sitting to standing). Furthermore, this diagnosis does not explain the characteristic positional vertigo.

C - correct answer.

D - the patient is elderly and has a history of falls, however there is no evidence of head injury, nor does this explain the presence of positional vertigo.

E - the chronic duration of symptoms as well as the lack of any preceding viral infection make this an unlikely diagnosis.

Question:

A 24-week pregnant woman attends the early pregnancy unit as she has been told that her uterus is small for this date. On ultrasound she is found to have oligohydraminos.

Which of the following options is a cause of oligohydraminos?

A.Duodenal atresia

B.Microcephaly

C.Trisomy 21

D.Bartter's syndrome

E.Renal agenesis

Answer:Renal agenesis

Explanation:

Oligohydraminos is a conditions where there is a deficiency of amniotic fluid during pregnancy. This can often present as smaller symphysiofundal height.

Renal agenesis is a cause of oligohydraminos (abnormally low volume of amniotic fluid) as the amniotic fluid is mainly derived from foetal urine.

Question:

A 34-year-old man who is known to have a congenital bicuspid aortic valve attends the dentist for polishing. What is the most appropriate management with regards to endocarditis prophylaxis?

A.Amoxicillin 3g PO pre-procedure

B.No antibiotics needed

C.Metronidazole 1g PO pre-procedure

D.Gentamicin 120mg IM pre-procedure

E.Amoxicillin 1g IV + gentamicin 120mg IV pre-procedure

Answer:No antibiotics needed

Explanation:

Antibiotic prohylaxis to prevent infective endocarditis is not routinely recommended in the UK for dental and other procedures

Important for meLess important

The 2008 NICE guidelines have fundamentally changed the approach to infective endocarditis prophylaxis

Question:

An eighty-year-old man is recovering on a surgical ward following a major abdominal surgery. He has developed delirium which you diagnosed using the confusion assessment method (CAM) a few days ago. You feel this is likely due to his large opioid load but have been unable to wean him due to persistent post operative pain. The patient has been receiving one to one nursing for his own protection as he tends to wander. The ward matron approaches you and asks that the patient be sedated this evening as she is short staffed and cannot afford to use a nurse for one to one cover. How should you proceed?

A.Give 0.5mg of haloperidol to sedate the patient overnight

B.Give 2mg of oral lorazepam overnight

C.Use raised cot sides to prevent the patient leaving his bed overnight

D.Use a waist strap to secure the patient to the bed

E.Refuse to change the patients care plan and suggest the matron obtains an agency nurse or HCA to cover the patient overnight

Answer:Refuse to change the patients care plan and suggest the matron obtains an agency nurse or HCA to cover the patient overnight

Explanation:

This question relates to the use of restraint in patients who lack capacity. There is much legislation in this part of medicine but if you stick to the core principles many of these cases are easily navigated:

1) Primum non nocere (first, do no harm)

2) Use restraint only to prevent harm to the patient or others

3) Use the minimum amount of restraint possible.

The current NICE guidelines advocate the use of oral agents as first line in agitated patients - though approach with caution as lorazepam is associated with falls (https://www.nice.org.uk/guidance/cg25/documents/disturbed-behaviour-clinical-guideline-second-consultation-rt-algorithm2). The use of mechanical agents for restraint is permissible in some circumstances but bear in mind with an active patient he is likely to climb raised cot sides and may fall from height as a result. Waist straps should rarely be used in clinical practice as there are cases of strangulation that have resulted from their use.

Whereas it is advisable to support and facilitate your colleagues in times of difficulty, this should never be done at the expense of the patient. The Royal College of Emergency Medicine has published guidance on the use of restraint that covers these issues in greater depth, 'Consent, Capacity and Restraint of Adults, Adolescents and Children in Emergency Departments'

Question:

A 75-year-old man is seen in clinic with an 8-month history of poor vision which cannot be corrected with eyeglasses. He has a past medical history of hypertension, allergic conjunctivitis, and type 1 diabetes mellitus and has smoked 30 cigarettes daily over the last 20 years.

On examination, his visual acuity is 6/30 in the right eye and 6/6 in the left. Fundoscopy reveals increased numbers of retinal blood vessels, blot haemorrhages, and hard exudates in the nasal upper quadrant. The left eye is normal and he denies any episodes of sudden visual loss or ocular trauma.

What is the most likely diagnosis?

A.Dry age-related macular degeneration

B.Hypertensive retinopathy

C.Non-proliferative diabetic retinopathy

D.Proliferative diabetic retinopathy

E.Wet age-related macular degeneration

Answer:Proliferative diabetic retinopathy

Explanation:

Proliferative retinopathy is more common in T1DM

Important for meLess important

Proliferative diabetic retinopathy is correct. This patient has reduced visual acuity in his right eye that cannot be corrected with eyeglasses and the presence of retinal neovascularisation, microaneurysms, and hard exudates. The presence of these features on a background of type 1 diabetes mellitus should raise suspicion of diabetic retinopathy, more specifically proliferative diabetic retinopathy due to the presence of neovascularisation (increased numbers of retinal blood vessels). Proliferative diabetic retinopathy is more common in type 1 diabetes mellitus.

Non-proliferative diabetic retinopathy is incorrect. This would be correct if there was no neovascularisation on fundoscopy. Given that this patient has neovascularisation present, the most likely diagnosis is proliferative diabetic retinopathy.

Dry age-related macular degeneration (AMD) is incorrect. Although hypertension and smoking are two major risk factors for dry AMD, along with the presence of diabetes mellitus, this diagnosis is less likely as this patient does not have features suggestive of the macula being involved, such as central visual loss and distorted lines. As well as this, fundoscopy does not show any signs affecting the macula directly and no drusen (yellow round spots) are present.

Hypertensive retinopathy is incorrect. Although this can present with hard exudates and blot haemorrhages, this diagnosis would not explain the presence of neovascularisation. This combination of features along with the presence of type 1 diabetes mellitus is more suggestive of proliferative diabetic retinopathy.

Wet age-related macular degeneration is incorrect. Although hypertension and smoking are two major risk factors for wet AMD along with diabetes mellitus, and it can present with neovascularisation, this diagnosis is less likely as this patient does not have features suggestive of the macula being involved, such as central visual loss and distorted lines.

Question:

A 6-month-old boy is brought to their GP due to family concerns over the child's development. They were born at term via vaginal delivery, with no complications. The child is otherwise well, with no past medical history.

What developmental marker would be most expected in this child?

A.Can build a tower of 2 bricks

B.Can copy a vertical line

C.Good pincer grip

D.Has a hand preference

E.Pass objects from one hand to another

Answer:Pass objects from one hand to another

Explanation:

By 6 months, a child can hold objects with palmar grasp, and pass objects from one hand to another

Important for meLess important

This scenario describes a 6-month-old boy brought to the GP due to family concerns over his development. The question is testing the developmental milestones of a 6-month-old, which can include: holds objects with palmar grasp and pass objects from one hand to another.

Can build a tower of 2 bricks is not correct. This milestone is expected for a child of approximately 15 months old and is therefore too advanced for this child.

Can copy a vertical line is incorrect. This is a fine motor skill which would be expected of a 2-year-old child.

Good pincer grip is a motor skill expected of a 12-month-old child, not a 6-month-old as described in the scenario.

Has a hand preference is not correct. A child having a hand preference before the age of ~12 months is concerning as it could indicate cerebral palsy.

Question:

A 40-year-old man presents to the eye hospital with a one-day history of bilateral red eyes around the corneal limbus. Both eyes are very painful, especially when trying to read the newspaper. On further questioning, he reports photosensitivity and blurry vision. He has a generalised headache, as well as back pain that is worse in the morning and improves over the course of a day.

On examination, his pupils are small, oval-shaped and fixed. There is no hypopyon, but they are very watery.

What is the most appropriate management plan?

A.Bilateral laser iridotomy

B.High flow oxygen and sumatriptan

C.Sodium cromoglicate eye drops

D.Steroid and cycloplegic eye drops

E.Steroid eye drops

Answer:Steroid and cycloplegic eye drops

Explanation:

Anterior uveitis is most likely to be treated with a steroid + cycloplegic (mydriatic) drops

Important for meLess important

This patient has classic symptoms of anterior uveitis secondary to a systemic condition such as ankylosing spondylitis. He has bilateral red, painful eyes around the corneal limbus, watering, blurry vision, and small, fixed, oval-shaped pupils. Back pain that improves as the day goes on could indicate ankylosing spondylitis. Hypopyon may not always be present.

Steroid and cycloplegic eye drops are the correct options. Cyclopentolate is used in order to relieve pain caused by the spasm of the muscles controlling the pupil. It will also help to prevent the formation of synechiae that may affect the function of the pupil. Steroids help to treat the underlying inflammation.

Bilateral laser iridotomy would not be an appropriate treatment for this patient who most likely has anterior uveitis. This treatment would be most appropriate for acute closed-angle glaucoma.

High flow oxygen and sumatriptan look tempting as a cluster headache is one possible differential, due to the lacrimation, red eyes and headache. However, this presentation is more consistent with anterior uveitis instead.

Topical sodium cromoglicate is not correct, as it is used to treat allergic conjunctivitis. This condition usually presents with watery, red, itchy eyes in patients with a history of atopy.

Steroid eye drops alone would not be appropriate as it is also important to treat the pain with cyclopentolate eye drops.

Question:

A 78-year-old woman presents to her GP with symptoms of vulval itching and some burning discomfort around the vulva when passing urine for the last three weeks. On examination, the GP finds some mild inflammation and three discrete white plaques within the affected area.

What is the most likely diagnosis?

A.Herpes simplex

B.Lichen planus

C.Lichen sclerosus

D.Lichen simplex chronicus

E.Vulval cancer

Answer:Lichen sclerosus

Explanation:

Lichen sclerosus: itchy white spots typically seen on the vulva of elderly women

Important for meLess important

Lichen sclerosus commonly presents with itchy white areas or plaques and is typically seen on the vulva of elderly women. Itching can cause mild irritation and burning of the irritated area when passing urine. The presence of well-defined white plaques indicates that lichen sclerosus is the most likely diagnosis.

Lichen planus can affect the skin and mucous membranes, and can also cause itching. The cutaneous appearance of lichen planus is typically raised purple-red discoloured areas, however, rather than white plaques.

Lichen simplex chronicus causes a localized, well-circumscribed area of thickened skin (lichenification) resulting from repeated rubbing, itching, and scratching of the skin. It develops after a very prolonged period of cyclical skin damage followed by thickening to protect from further damage - for example, the lichenification of skin in chronic eczema. Lichen simplex chronicus would take much longer than 3 weeks to develop.

Herpes simplex may cause itching and vulval irritation, however, it would cause a blistering rash rather than white plaques.

Vulval cancer is much less common than lichen sclerosus, meaning it is a less likely diagnosis. Vulval cancer should be suspected if bleeding, open sores or poorly defined tissue changes are present on examination. Vulval cancer should also be suspected if an initial lesion fails to respond to treatment.

Question:

A 27-year-old G2P1 woman presents to the emergency department in the second stage of labour. On examination, the foetal head is visible at the vaginal introitus. Her past medical history is significant only for a previous elective lower-segment Caesarean section.

Antenatal imaging suggested an invasion of the chorionic villi into the myometrium but not the perimetrium.

After the foetus is delivered, the patient develops a post-partum haemorrhage.

What is the most likely cause for her post-partum haemorrhage?

A.Placenta increta

B.Placenta percreta

C.Placenta praevia

D.Placental abruption

E.Vasa praevia

Answer:Placenta increta

Explanation:

Placenta increta - the chorionic villi invade in to the myometrium but not through to the perimetrium

Important for meLess important

Placenta increta is correct. Placenta increta is a disorder of the placenta in which the chorionic villi, usually limited to the endometrium, invade the myometrium and may cause heavy bleeding in vaginal delivery. Placenta increta is more severe than placenta accreta, in which chorionic villi attach to the myometrium but do not invade, but less severe than placenta percreta, in which chorionic villi invade the perimetrium.

Vasa praevia is incorrect. This describes a condition in which the foetal blood vessels run near the internal opening of the uterus. This classically presents as the rupture of membranes followed by vaginal bleeding and foetal distress. This would also likely to have been detected on antenatal imaging.

Placenta percreta is incorrect, as this is characterised by chorionic villi that invade the perimetrium, the outermost layer of the uterus. Placenta increta is the most severe disorder on the 'placenta accreta' spectrum.

Placenta praevia is incorrect. This is characterised by a low-lying placenta that classically causes painless antepartum bleeding. This would likely have been detected on antenatal imaging and does not show an invasion of chorionic villi into the myometrium.

Placental abruption is incorrect. This classically causes painful antepartum bleeding in which vaginal bleeding is disproportionately low in comparison to the patient's true blood loss. Placental abruption classically presents with a 'woody' firm uterus on examination and may have associated foetal distress on cardiotocography.

Question:

You are the obstetrics FY2 doctor checking through the list of patients currently on the labour ward. Which one of the following findings in one of the patients would prompt you to start continuous CTG tracing while in labour?

A.Blood pressure of 140/90 mmHg

B.Previous pregnancy required forceps delivery

C.New onset vaginal bleed while in labour

D.Temperature of 37.5ºC

E.Mother is anxious about delivery

Answer:New onset vaginal bleed while in labour

Explanation:

As per NICE guidelines; the following would warrant continuous CTG monitoring if any of the following are present or arise during labour;

suspected chorioamnionitis or sepsis, or a temperature of 38°C or above

severe hypertension 160/110 mmHg or above

oxytocin use

the presence of significant meconium

fresh vaginal bleeding that develops in labour - this was a new point added to the guidelines in 2014

Fresh vaginal bleeds developing in labour could be a sign of placental rupture (the most common cause of antepartum haemorrhage) or placental praevia (second most common cause of antepartum haemorrhage) and therefore monitoring of the baby is required.

Question:

A 67-year-old male presents to his GP with reduced urine output over the last 2 days and increasing lethargy. He has no other symptoms.

Urine dip: +++ protein, + leucocytes, - nitrites, + blood.

Hb 123 g/L Male: (135-180)

Female: (115 - 160)

Platelets 147 \* 109/L (150 - 400)

WBC 5.2 \* 109/L (4.0 - 11.0)

Na+ 137 mmol/L (135 - 145)

K+ 5.3 mmol/L (3.5 - 5.0)

Corrected calcium 3.2 mmol/L (2.1-2.6)

Urea 11 mmol/L (2.0 - 7.0)

Creatinine 174 µmol/L (55 - 120)

ESR 34 mm/hr (0-22)

Baseline creatinine 3 months ago was 70 µmol/L.

What is the most likely underlying diagnosis?

A.ANCA-associated vasculitis

B.Urinary tract infection

C.Primary hyperparathyroidism

D.Multiple myeloma

E.Sarcoidosis

Answer:Multiple myeloma

Explanation:

Renal impairment in myeloma has 4 causes: AL type amyloidosis, Bence Jones nephropathy, nephrocalcinosis, nephrolithiasis

Important for meLess important

This man has an AKI with hypercalcaemia and proteinuria, along with anaemia and thrombocytopenia. This should raise alarm bells for myeloma. A urinary Bence-Jones protein test should be considered in people presenting with an AKI with no clear cause or where myeloma is suspected.

Myeloma classically causes hypercalcaemia, pancytopenia and an AKI.

ANCA-associated vasculitis could cause a nephritic syndrome type picture with blood and protein in the urine dip, and a raised ESR, and could cause anaemia but this wouldn't explain the thrombocytopenia or the hypercalcaemia.

Urinary tract infection can have subtle symptoms. Typically, the urine dip would be positive for nitrites. Leucocytes can be mildly positive on urine dip in normal people. This would also not account for the blood results.

Primary hyperparathyroidism can cause hypercalcaemia but again would not account for the other blood results.

Sarcoidosis can cause hypercalcaemia, anaemia and rarely AKI and thrombocytopenia, however, this wouldn't account for the urine dip findings and is far less likely.

Question:

A 73 year old woman presents to the Emergency Department with progressive shortness of breath. On examination the patient has an S3 gallop rhythm, bibasal crepitations and pitting oedema up to both knees. An ECG shows signs of left ventricular hypertrophy and a chest X-ray shows small bilateral pleural effusions, cardiomegaly and upper lobe diversion.

Given the likely diagnosis, which of the following drugs has been shown to improve long-term survival?

A.Digoxin

B.Furosemide

C.Glyceryl trinitrate (GTN)

D.Ramipril

E.Bumetanide

Answer:Ramipril

Explanation:

This patient has features of congestive heart failure. While loop diuretics (furosemide, bumetanide) and nitrates are important in the management of acute or decompensated cardiac failure, they have no effect on long-term survival.

The following drugs have all been shown to reduce mortality in patients with left ventricular failure:

ACE-inhibitors

Beta-blockers

Angiotensin receptor blockers

Aldosterone antagonists

Hydralazine and nitrates

Digoxin has been shown to reduce hospital admissions but not mortality. It is generally used in patients with worsening heart failure despite first or second line treatments, or in patients with co-existant atrial fibrillation

References:

https://www.nice.org.uk/guidance/cg108

The Digitalis Investigation Group. The Effect of Digoxin on Mortality and Morbidity in Patients with Heart Failure. N Engl J Med. 1997;336:525-533

Question:

A 34-year-old male presents with severe epigastric pain that started earlier in the day. The pain appears to be radiating into his back. He feels nauseous and has vomited multiple times over the day. His past medical history includes alcoholism and indigestion. His blood tests are as follows:

Lipase 1467 U/L (540-1000)

Amylase 735 U/L (70 - 300)

Which one of the following metabolic abnormalities is most likely to be found in this patient?

A.Hyperkalemia

B.Hypermagnesemia

C.Hypocalcemia

D.Hypoglycemia

E.Hypotriglyceridemia

Answer:Hypocalcemia

Explanation:

Acute pancreatitis may cause hypocalcemia

Important for meLess important

This patient is most likely to have acute pancreatitis secondary to alcoholism. This is evidenced through the acute onset epigastric pain, nausea, vomiting and elevated pancreatic enzymes.

Hypocalcemia is common in those with acute pancreatitis, and is often used to identify if someone is at risk of adverse outcomes.

It is actually hyperglycemia, not hypoglycemia, which may be found in acute pancreatitis.

Hypertriglyceridemia is also associated with acute pancreatitis, not hypotriglyceridemia. Both hyperglycemia and hypertriglyceridemia can be precipitants of pancreatitis.

Hypokalemia is more likely to be seen in pancreatitis due to the nausea and vomiting associated with the condition.

This patient has a history of excessive alcohol intake which is more likely to result in hypomagnesemia, not hypermagnesemia. It is also important to be aware that someone who is deficient in calcium should be screened for hypomagnesemia, as this can be a cause.

Question:

A 6-year-old girl presents to the GP with her mother with nocturnal enuresis. She is wetting the bed most nights. Her parents have tried toileting before bed time, reducing liquid consumption before bed time and have tried a reward chart for dry nights without success. What is the next step in treatment?

A.Prescribe desmopressin

B.Continue with reward system

C.Enuresis alarm

D.Reassure this is normal and will improve with age

E.Increase frequency of toileting before bed time

Answer:Enuresis alarm

Explanation:

An enuresis alarm is generally used first-line for nocturnal enuresis if general advice has not helped

Important for meLess important

This question focuses on the stepwise treatment of nocturnal enuresis. In this scenario, lifestyle measures such as decreasing fluid intake and toileting before bed have already been tried. A reward chart has also been implemented without success. Although this is a common problem in children, it is not considered normal over the age of 5 and so reassurance would not help in this situation.

The two options left to consider at this stage are to prescribe desmopressin or to try and enuresis alarm.

The current first-line treatment is an enuresis alarm. If the child is aged under 7, it must be tried before other measures are considered. As the child in the above scenario is 6 years-old, the best option would be to try an enuresis alarm.

Desmopressin may be used first-line if the child is over the age of 7 and does not wish to use the enuresis alarm or if a short term solution is required. This is not the case in this scenario and so would not be the correct answer.

Question:

You are caring for a 58-year-old type 2 diabetic in the community. Her most recent glucose levels have been sporadic and her HbA1C has come back at 105 mmol/mol. You decide to increase her metformin as you are acutely concerned about her control. During the consultation, she states that she wishes to partake in Ramadan starting next week. You are very concerned about this and the effects it would have on her blood sugar. What do you tell her?

A.Advise her not to partake, due to medical reasons, and to contact her Imam for support

B.Accept her opinion and increase her diabetes monitoring over the next month

C.Telephone her Imam about your concerns asking him to discuss this with her

D.Inform her she cannot partake and to contact her Imam

E.Accept her opinion and change her onto insulin for better control

Answer:Advise her not to partake, due to medical reasons, and to contact her Imam for support

Explanation:

The GMC has produced guidelines about personal beliefs and professional practice. They state that you must treat patients fairly and with respect, whatever their beliefs or life choices. If you have a conscientious objection explain this (you may wish to say why) and inform them that they have a right to see another doctor, ensure they have all the adequate information to do this. If it is not practical to see another doctor you must ensure you make arrangements for another colleague to take over your role. In doing this you must not express disapproval

Patients personal beliefs may make them ask for a procedure for religious, cultural or social reasons and may refuse treatment you judge not to be of overall benefit to them. That is the case in this question. You cannot force her not to fast and breaking confidentiality by telling her Imam is against GMC guidelines. Thus you must either advise her or accept her opinion.

We know that her blood glucose control if poor so just accepting her opinion and increasing the monitoring may put her at an increased risk of both short and long term complications. Equally, starting her on insulin would be dangerous if she is planning on fasting.

Instead, the best option to inform her, that as her doctor, you need to advise her not to fast. But suggest she contacts her Imam for further help and advice on this situation.

Question:

A 75-year-old woman has new-onset left-handed weakness and difficulties comprehending speech, both of which started at 10:00 am. It is currently 12:45 pm.

She has a past medical history of ischaemic heart disease, Alzheimer's disease, and antiphospholipid syndrome, for which she takes atorvastatin, ramipril, bisoprolol, warfarin, and donepezil.

Initial investigations are performed:

Capillary blood glucose 4.1 mmol (4.0-6.0 mmol)

Oxygen saturations 95%

What is the most appropriate next step in her management?

A.Immediate CT head (contrast)

B.Immediate CT head (non-contrast)

C.Immediate high-dose aspirin

D.Immediate thrombectomy alone

E.Immediate thrombolysis + thrombectomy

Answer:Immediate CT head (non-contrast)

Explanation:

Stroke: aspirin 300mg should be given once a haemorrhagic stroke has been excluded by a CT scan

Important for meLess important

Immediate CT head (non-contrast) is correct. This patient is taking an anticoagulant (warfarin), meaning their risk of a haemorrhagic stroke is high. Bleeding can be identified or ruled out by an immediate CT head without contrast. This is quicker than a contrast CT or MRI scan, allowing aspirin to be given only once a haemorrhagic stroke has been ruled out.

Immediate high-dose aspirin is incorrect. It would not be appropriate to give aspirin at the moment as we do not know if this patient has an ischaemic or haemorrhagic stroke. A non-contrast CT head is essential first, and then aspirin can be given if there is no bleeding.

Immediate CT head (contrast) is incorrect. A non-contrast CT head must be carried out first to rule out haemorrhage so that aspirin can be given immediately. A CT with contrast is slower than a non-contrast CT head, delays treatment, and uses unnecessary contrast medium.

Immediate thrombectomy only is incorrect. A non-contrast CT head must be carried out first to rule out haemorrhage, so that aspirin can be given immediately, before making decisions regarding thrombolysis and/or thrombectomy.

Immediate thrombolysis + thrombectomy is incorrect. A non-contrast CT head must be carried out first to rule out haemorrhage and thus diagnose an ischaemic stroke that could need thrombolysis and/or thrombectomy before further treatment options are decided.

Question:

A 72-year-old female patient, with a past history of chronic kidney disease (CKD) and type 2 diabetes mellitus, presents to her general practitioner for the results of her annual urinary albumin:creatinine ratio (ACR) test. Her previous results have all been below 3mn/mmol, but on this occasion, it is reported as 4.7mg/mmol. The patient also has the following blood results:

Hb 116 g/L 115 – 165 g/L

Na+ 143 mmol/L 133–146 mmol/L

K+ 4.8 mmol/L 3.5–5.3 mmol/L

Ca2+(adjusted) 2.5 mmol/L 2.2-2.6 mmol/L

Mg2+ 0.9 mmol/L 0.7–1.0 mmol/L

Chloride 102 mmol/L 98-106 mmol/L

Urea 5..8 mmol/L 2.5 – 7.8 mmol/L

Creatinine 96 μmol/ L 45–84 μmol/ L

Phosphate 1.41 mmol/L 1.12 to 1.45 mmol/L

What is the most important change which should be made in her management plan, in response to this finding?

A.Commence an ACE inhibitor

B.Commence darbepoetin

C.Commence phosphate binders

D.Increase the frequency of ACR monitoring to twice yearly

E.Refer to nephrology

Answer:Commence an ACE inhibitor

Explanation:

Commence an ACE inhibitor is correct as this should be done In all patients with a clinically raised ACR (>3mg/mmol) and co-existent diabetes mellitus.

Commence darbepoetin is incorrect, for this should only be done if the patient had developed anaemia secondary to her CKD.

Commence phosphate binders is incorrect as this should only be done if the patient had developed hyperphosphatemia secondary to her CKD.

Increase the frequency of ACR monitoring to twice yearly is incorrect, while it may be agreed with the patient to increase the frequency of ACR monitoring, commencing an ACE inhibitor is of greater importance in her management.

Refer to nephrology is incorrect as there is nothing in the question to suggest she needs specialist input.

Question:

The mother of a 6-week-old baby girl born at 32 weeks gestation asks for advice about immunisation. What should happen regarding the first set of vaccines?

A.Give first set of vaccinations at 3 months (i.e. delay for 1 month)

B.Give DTaP/IPV/Hib at 2 months but not PCV

C.Give first set of vaccinations at 4 months (i.e. correct for gestational age)

D.Give first set of vaccinations as per normal timetable but within hospital environment

E.Give as per normal timetable

Answer:Give as per normal timetable

Explanation:

Question:

A 27-year-old African woman presents to the Emergency Department with a 7-day history of increasing pain in her thighs and shoulders. She also mentions worsening pain in her knees. Recently, she was diagnosed with tuberculosis and so has been taking the necessary medications. Upon stoppage of isoniazid, her musculoskeletal symptoms resolve. Which of the following antibodies is associated with her condition?

A.Rheumatoid factor

B.Anti Jo-1 antibody

C.Anti-Scl70 antibody

D.Antihistone antibody

E.Anticentromere antibody

Answer:Antihistone antibody

Explanation:

Antihistone antibodies are associated with drug-induced lupus

Important for meLess important

This patient is suffering from drug-induced lupus as her symptoms which are typical of the condition resolve following removal of one of her drugs. Isoniazid is one of the drugs that can cause drug-induced lupus and the antihistone antibodies are most associated with this condition.

Rheumatoid factor is seen in rheumatoid arthritis

Anti Jo-1 antibody is associated with polymyositis

Anti-Scl70 antibody is associated with diffuse systemic sclerosis.

Anticentromere antibody is associated with limited systemic sclerosis

Question:

Mr Sachs is a 28-year-old male who is seen by his GP for persistently high blood pressure and recurrent headaches. He was started on ramipril and nifedipine in order to control his blood pressure. Despite these interventions, his last measurement one day ago was 155/90. Recently he complained about fatigue and muscle weakness in both of his legs affecting his ability to cycle to work.

Blood tests reveal

Na+ 143 mmol/l

K+ 2.5 mmol/l

Calcium 2.5 mmol/l

Urea 4.0 mmol/l

Creatinine 60 umol/l

What is the most likely diagnosis?

A.Pheochromocytoma

B.Primary hyperaldosteronism

C.Hyperthyroidism

D.Hyperparathyroidism

E.Renal artery stenosis

Answer:Primary hyperaldosteronism

Explanation:

Primary hyperaldosteronism can present with hypertension, hypernatraemia, and hypokalemia

Important for meLess important

The increase in aldosterone will lead to increase resorption of sodium and excretion of potassium thus resulting in hypertension. Despite experiencing hypertension their sodium level tends to be within normal range. Pheochromocytoma, hyperthyroidism and hyperparathyroidism would exhibit different symptoms. Renal artery stenosis tends to appear in older people who have had time to develop atherosclerotic changes and a normal ultrasound decreases the likelihood of this.

Question:

A 65-year-old man is referred to the hospital by his GP with a 2-week history of worsening shortness of breath. He reports sleeping in a chair due to breathlessness when lying flat and awakens several times at night, struggling to breathe. He has a history of well-controlled hypertension and childhood rheumatic fever. His medications are ramipril and amlodipine.

Observations:

Heart rate: 98bpm

Blood pressure: 170/56mmHg

Temperature: 36.7oC

Respiratory rate: 18/min

Saturations: 98% on room air

On examination, you notice pulsation in the patient's nail bed.

What murmur would you expect to hear on auscultation?

A.Continuous machine-like murmur

B.Early diastolic murmur

C.Ejection systolic murmur

D.Late systolic murmur

E.Pansystolic murmur

Answer:Early diastolic murmur

Explanation:

Aortic regurgitation typically causes an early diastolic murmur

Important for meLess important

This patient has aortic regurgitation, which can present with symptoms including dyspnoea, orthopnoea, and paroxysmal nocturnal dyspnoea. He is at risk of aortic regurgitation due to his history of rheumatic fever. Further signs are the wide pulse pressure (114mg) and nail-bed pulsation (Quincke's sign).

Aortic regurgitation is associated with an early diastolic murmur, loudest on expiration. When severe, aortic regurgitation can be associated with a mid-late diastolic murmur (also known as an Austin-Flint murmur), but this is not an option here.

Continuous machine-like murmur is heard with patent ductus arteriosus.

Ejection systolic murmur is heard with aortic stenosis, pulmonary stenosis, atrial septal defects, tetralogy of Fallot, and hypertrophic obstructive cardiomyopathy.

Late systolic murmur is heard with mitral valve prolapse and coarctation of the aorta.

Pansystolic murmur is heard with mitral regurgitation, tricuspid regurgitation, or ventricular septal defect.

Question:

In an outpatient clinic you see a 65-year-old female. 3 weeks ago, she was put on high dose glucocorticoids for management of giant cell arteritis. Her blood tests were all in the normal ranges at her GP check up 6 months prior to treatment. She has no other medical conditions.

Which of the following would be the most likely finding on her blood results, taken on the day you see her?

A.High red cell differential width (RDW)

B.High reticulocyte count

C.Low serum sodium

D.Neutropaenia

E.Neutrophilia

Answer:Neutrophilia

Explanation:

Glucocorticoid treatment can induce neutrophilia

Important for meLess important

Glucocorticoid treatment can induce neutrophilia (high neutrophil count), making it the correct answer. Thus neutropeania is incorrect. Although glucocorticoids are immunosuppressive, they have been shown to exert complex and sometimes contradictory effects on neutrophils, which is important to know in a clinical context. See Ronchetti et al. 'How Glucocorticoids Affect the Neutrophil Life' (2018) for an excellent review on the immunology and signalling interactions between neutrophils and glucocorticoids.

Low serum sodium is incorrect because glucocorticoid treatment can cause slight sodium retention (i.e. increased serum sodium) due to its mineralocorticoid effect (causing fluid retention).

High reticulocyte count and high red cell differential width (RDW) are incorrect because they are not significantly altered after glucocorticoid administration. Reticulocyte is commonly altered in myelodysplastic disorders, as is RDW.

Question:

A 28-year-old woman gave birth two weeks ago. Today, she has presented to the general practitioner with two days of right breast pain and a tender area that feels firm, warm and swollen, and looks erythematous. She had reduced milk output.

Given the most likely diagnosis, what is the most appropriate management?

A.Continue breastfeeding normally

B.Flucloxacillin

C.Flucloxacillin and ultrasound guided aspiration

D.Interruption of breastfeeding

E.Refer for triple assessment

Answer:Continue breastfeeding normally

Explanation:

First-line management of mastitis is to continue breastfeeding

Important for meLess important

The patient is suffering from lactational mastitis, a condition in which a lactating woman's breast becomes painful, tender, and might appear erythematous. It is quite common as it presents in 1 in 10 lactating women.

The first-line treatment for uncomplicated mastitis is to continue breastfeeding normally. If expression is stopped the milk stasis will worsen, increasing the likelihood of developing an abscess. If this is too painful, a specialist appointment can be arranged via the general practitioner.

Flucloxacillin is prescribed for 10-14 days if the patient is systemically unwell, if nipple fissures are present or if symptoms do not improve after 12-24 hours of effective milk removal. This is the antibiotic of choice because the most common causing pathogen is Staphylococcus aureus.

Flucloxacillin and ultrasound-guided aspiration are used in case of an abscess. This is a common complication of mastitis. It would present with a tender fluctuant mass on examination.

Interruption of breastfeeding is not indicated as it increases milk stasis.

You would refer for a triple assessment if you were concerned about her symptoms being a presentation of Paget's disease of the nipple. But given her lactation history, the diagnosis is more likely to be mastitis. Additionally, Paget's is often painless and eczematous in appearance.

Question:

A 2-year-old boy is brought into the emergency department following a 1 week history of fever, lethargy and irritability. The symptoms came on suddenly over a matter of hours and have not dissipated despite the GP's recommendation of anti-pyretics. He has had a reduced appetite and diarrhoea during this time. Earlier this morning a widespread red rash appeared on his body..

On basic observations the child appears toxic looking, is tachycardic and has a temperature of 39.2ºC. Examination reveals a widespread maculopapular rash, left-sided cervical lymph node enlargement and a swollen, erythematous tongue.

Given the likely diagnosis what is the most important investigation in this child?

A.Chest x-ray

B.Abdominal ultrasound scan

C.Electrocardiogram (ECG)

D.Lumbar puncture

E.Echocardiogram

Answer:Echocardiogram

Explanation:

Coronary artery aneurysms are a complication of Kawasaki disease and this should be screened for with an echocardiogram

Important for meLess important

An echocardiogram is vital in this case as it may reveal coronary artery dilatation and/or aneurysm formation, which is the main cause of mortality with this disease.

An ECG would also be necessary to assess any conduction abnormalities, which may occur if carditis is a complication. However this does not cause as significant mortality as coronary artery complications.

It is unnecessary to perform a chest x-ray or lumbar puncture in this child as kawasaki disease doesn't typically affect the lungs or central nervous system. Abdominal ultrasound scan is unnecessary unless gallbladder distension is suggested by deranged liver function tests.

Question:

A 50-year-old woman presents with a 2-week history of vertigo. The doctor suspects benign paroxysmal positional vertigo (BPPV) and decides to perform a Dix-Hallpike manoeuvre to confirm his diagnosis.

Which of the following findings on the performance of the manoeuvre would suggest his diagnosis is correct?

A.Cessation of vertigo symptoms

B.Onset of intention tremor

C.Onset of rotatory nystagmus

D.Onset of tinnitus

E.Onset of vertical nystagmus

Answer:Onset of rotatory nystagmus

Explanation:

Rotatory nystagmus is indicative of a positive Dix-Hallpike manoeuvre

Important for meLess important

Rotatory nystagmus occurs on the performance of a positive Dix-Hallpike manoeuvre in BPPV due to dysfunction in the semicircular canals.

The onset of vertigo is another indicator of a positive Dix-Hallpike manoeuvre, meaning 'cessation of vertigo' is an incorrect answer to this question.

Tinnitus can be associated with vertigo in conditions such as Meniere's disease. Its onset would not indicate a positive Dix-Hallpike manoeuvre.

Vertical nystagmus is not usually provoked by the Dix- Hallpike manoeuvre and is more commonly associated with neurological pathology than BPPV.

An intention tremor in association with vertigo is suggestive of cerebellar pathology and would not indicate a positive Dix-Hallpike manoeuvre.

Question:

A 71-year-old man who has atrial fibrillation and heart failure is started on digoxin. What is the mechanism of action of digoxin?

A.Blocks Ca2+ release from the sarcoplasmic reticulum

B.Blocks Na+ entry into myocytes

C.Agonist of the myocyte sodium-calcium exchanger

D.K+ channel blocker

E.Inhibits the Na+/K+ ATPase pump

Answer:Inhibits the Na+/K+ ATPase pump

Explanation:

Digoxin - inhibits the Na+/K+ ATPase pump

Important for meLess important

Question:

A 22-year-old female is extubated following an uncomplicated laparoscopic appendicectomy. However, no respiratory effort is made and she is re-intubated and ventilated. She is monitored in the intensive care unit and all observations are normal. She is weaned from the ventilator 24 hours later successfully. What complication has occurred?

A.Misplacement of the endotracheal tube in intubation

B.Suxamethonium apnoea

C.Opioid toxicity

D.Malignant hyperpyrexia

E.Overdose of propofol

Answer:Suxamethonium apnoea

Explanation:

A small subset of the population has an autosomal dominant mutation, leading to a lack of the specific acetylcholinesterase in the plasma which acts to break down suxamethonium, terminating its muscle relaxant effect. Therefore, the effects of suxamethonium are prolonged and the patient needs to be mechanically ventilated and observed in ITU until the effects of suxamethonium wear off.

Opioid toxicity causes respiratory depression but is unlikely to be extreme enough to cause no respiratory effort in the monitored conditions of an anaesthetic. Misplacement of the endotracheal tube would cause hypoxia with a respiratory acidosis soon after intubation and potentially a pneumothorax ipsilaterally with collapse contralaterally. A propofol overdose would cause a fall in blood pressure. Malignant hyperpyrexia would manifest with a rise in temperature, rise in blood pressure, muscle spasm, type II respiratory failure and metabolic acidosis and arrhythmias.

Question:

A 63-year-old man is admitted to the respiratory ward with a 4-week history of shortness of breath. His past medical history includes chronic obstructive pulmonary disease and ischaemic heart disease.

On examination, his respiratory rate is 28 breaths/minute with a SpO2 of 86% on air. There are absent breath sounds at the right lung base that is dull to percussion.

Blood tests are taken:

WBC 12.1 \* 109/L (4.0 - 11.0)

Urea 8.5 mmol/L (2.0 - 7.0)

Creatinine 155 µmol/L (55 - 120)

Lactate dehydrogenase 330 U/L (< 250)

A pleural aspiration is taken.

Lactate dehydrogenase 1000 U/L

What is the most likely cause of this patient's presentation?

A.End-stage liver disease

B.Haemothorax

C.Heart failure

D.Nephrotic syndrome

E.Parapneumonic effusion

Answer:Parapneumonic effusion

Explanation:

Light's criteria: Effusion LDH level greater than 2/3rds the upper limit of serum LDH points to exudate

Important for meLess important

Parapneumonic effusion is correct. This patient has signs of a pleural effusion given the presence of reduced breath sounds and dullness to percussion. In the assessment of a pleural effusion, it is important to ascertain whether the effusion is a transudate or exudate. This can sometimes be ascertained quite easily by looking at the protein content of the pleural fluid (transudate protein content < 25g/L and exudate protein content > 35g/L). However, in some cases (i.e. protein content 25-35g/L) Light's criteria need to be applied.

Light's criteria state that a pleural effusion is an exudate if:

Effusion lactate dehydrogenase (LDH) level greater than 2/3 the upper limit of serum LDH

Pleural fluid LDH divided by serum LDH >0.6

Pleural fluid protein divided by serum protein >0.5

As this patient's pleural LDH is > 3x that of the serum LDH, this pleural effusion is an exudate. Of the options listed, a parapneumonic effusion is an exudative effusion that is most likely to be responsible for this patient's presentation (although malignancy should also be considered given the history of COPD).

End-stage liver disease is incorrect. This would cause a transudative effusion secondary to hypoalbuminaemia. There is no history to suggest that this patient would have a liver impairment and the raised LDH makes an exudate, such as a parapneumonic effusion, more likely.

Haemothorax is incorrect. Although a haemothorax can cause an exudative effusion, as seen here, the lack of a history of trauma makes a haemothorax very unlikely.

Heart failure is incorrect. This would cause a transudative effusion. Patients with respiratory disease can develop cor pulmonale secondary to raised pulmonary pressures and subsequently features of congestive heart failure. Additionally, the history of ischaemic heart disease could predispose this patient to heart failure. However, the raised LDH makes this unlikely to be the diagnosis.

Nephrotic syndrome is incorrect. This would cause a transudative effusion. Although the urea and creatinine are not within normal limits, this is likely to represent a pre-renal or renal kidney injury from the effusion, rather than represent chronic kidney injury or nephrotic syndrome.

Question:

A 3-year-old boy is brought into resus in cardiac arrest. The patient was brought in by ambulance with his mother. She is too distraught to give any history other than the child had been okay when she had left the room. He was found unconscious on her return so an ambulance was called.

Which of the reversible causes of cardiac arrest are most likely in this situation?

A.Hypothermia

B.Hypovolaemia

C.Hypoxia

D.Tension pneumothorax

E.Thrombus

Answer:Hypoxia

Explanation:

The most common causes of arrest in children are respiratory

Important for meLess important

The most likely cause of this arrest was hypoxia as the most common cause of paediatric arrest is a respiratory arrest. In this case, hypoxia is likely due to a choking episode due to the child's age and the lack of a clear history for another cause. Choking episodes are common causes of collapse and arrest in young ambulant children, particularly toddlers.

There is nothing to suggest that the patient was hypothermic and the lack of trauma in the history makes hypovolaemia and tension pneumothorax less likely. Thrombus is not as common in children as adults.

Question:

A 62-year-old man with hypertension attends his GP for blood pressure monitoring. The doctor measures the patient's blood pressure and it is 170/110 mmHg. The blood pressure is unresponsive to triple therapy so he is referred for specialist assessment where some blood tests are ordered.

The results are:

Na+ 147 mmol/L (135 - 145)

K+ 3.3 mmol/L (3.5 - 5.0)

Bicarbonate 26 mmol/L (22 - 29)

Urea 9 mmol/L (2.0 - 7.0)

Creatinine 124 µmol/L (55 - 120)

GFR 85 mL/min per 1.73 m2 (>60)

Plasma renin activity 4.1 nmol/L (0.8 to 3.0)

What is the mostly likely cause of the refractory hypertension?

A.Chronic kidney disease

B.Renal artery stenosis

C.Pheochromocytoma

D.Cushing's syndrome

E.Bilateral adrenal hyperplasia

Answer:Renal artery stenosis

Explanation:

Primary and secondary aldosteronism can be differentiated by looking at the renin levels. If renin is high then a secondary cause is more likely, i.e renal artery stenosis.

Important for meLess important

Renal artery stenosis - the patient has a high renin level and therefore a secondary aldosteronism is more likely. The reduced perfusion results in decreased stimulation of the baroreceptors (or stretch receptors) in the wall of the afferent arteriole. The renin–angiotensin–aldosterone system is activated and with the increased aldosterone the potassium may be low, and the sodium high.

Chronic kidney disease - plausible option however with a normal GFR unlikely.

Pheochromocytoma - plasma renin would not be high.

Cushing's syndrome - plasma renin would not be high.

Bilateral adrenal hyperplasia - plasma renin would not be high.

Question:

A 55-year-old man presents with a one month history of fever, arthralgia and lethargy. He also recently developed haemoptysis and dyspnoea. Investigations show that he has an acute kidney injury. ANCA (anti-neutrophil cytoplasmic antibody) is negative.

What is the most appropriate test from the options below?

A.Anti-glomerular basement membrane (GBM) antibodies

B.Anti-centromere antibody

C.ANti-Jo1

D.Anti-dsDNA antibody

E.Anti-CCP (cyclic citrullinated peptide) antibody

Answer:Anti-glomerular basement membrane (GBM) antibodies

Explanation:

The clinical features are suggestive of Goodpasture syndrome or Granulomatosis with polyangiitis (GPA). A negative ANCA (anti-neutrophil cytoplasmic antibody) makes GPA less likely. A positive anti-glomerular basement membrane (GBM) antibody can assist in making the diagnosis of Goodpasture syndrome.

Question:

A 37-year-old woman in her second pregnancy has delivered a live male infant. She has no past medical history of note. Ten minutes after delivery, she complains of a sudden onset severe occipital headache that is associated with vomiting. On examination there is evidence of photophobia. Shortly after this she losses consciousness and has a Glasgow coma score of 8. A CT scan shows blood in the sulci, fissures, basal cisterns. What is the most likely diagnosis?

A.Extra-dural haematoma

B.Sheehan's syndrome

C.Sub-dural haematoma

D.Subarachnoid haemorrhage

E.Intracerebral haemorrhage

Answer:Subarachnoid haemorrhage

Explanation:

A subarachnoid haemorrhage (SAH) is a type of stroke which is usually the result of bleeding from a berry aneurysm in the Circle of Willis. Key clinical features include a sudden onset headache which reaches maximum severity in seconds to minutes ('thunderclap headache') and meningitic symptoms (for example photophobia and neck stiffness).

Question:

A 26-year-old student presents with increased thirst. As a result, he is waking up frequently at night to pass urine and not resting adequately. He is very worried that this may be diabetes due to his family history.

His most recent blood tests showed the following:

HbA1c 40 mmol/mol (< 48)

You suspect the underlying cause may be psychogenic polydipsia and request urine and serum osmolality to confirm.

What are these tests most likely to show if your suspicion is correct?

A.A very high baseline serum osmolality

B.High urine osmolality after fluid deprivation and high urine osmolality after desmopressin

C.High urine osmolality after fluid deprivation and low urine osmolality after desmopressin

D.Low urine osmolality after fluid deprivation and high urine osmolality after desmopressin

E.Low urine osmolality after fluid deprivation and low urine osmolality after desmopressin

Answer:High urine osmolality after fluid deprivation and high urine osmolality after desmopressin

Explanation:

Water deprivation test: primary polydipsia

urine osmolality after fluid deprivation: high

urine osmolality after desmopressin: high

Important for meLess important

High urine osmolality after fluid deprivation and after desmopressin is the correct answer as this is the normal response to these tests: the urine should concentrate (i.e. the osmolality should increase). If the polydipsia is of psychogenic nature, the kidneys can generally concentrate the urine normally (although this can be temporarily altered by drinking excessive amounts of water), so the osmolality will be high both in response to dehydration and to desmopressin, a synthetic version of antidiuretic hormone (ADH).

In diabetes insipidus, the serum is very concentrated (high osmolality) and the urine is very dilute (low osmolality). If the source is central/cranial (lack of ADH production), this can be corrected with desmopressin which will cause the urine to concentrate (higher urine osmolality). If the source is nephrogenic (the kidneys do not respond to ADH), the urine remains dilute (low osmolality) even after desmopressin.

Low urine osmolality after fluid deprivation and high urine osmolality after desmopressin would suggest that the kidneys do respond to ADH by concentrating urine, however, ADH is not being produced by the hypothalamus, therefore pointing to cranial diabetes insipidus. In this case, we are suspecting psychogenic polydipsia which would not cause these results.

Low urine osmolality after fluid deprivation and low urine osmolality after desmopressin would suggest that the kidneys do not respond to ADH and point to nephrogenic diabetes insipidus, which is not the diagnosis we are suspecting here.

High urine osmolality after fluid deprivation and low urine osmolality after desmopressin is incorrect. You would not expect a low urine osmolality (dilute urine) after giving desmopressin unless, again, the kidneys were not responding to ADH correctly, meaning the patient had nephrogenic diabetes insipidus, in which case the urine osmolality would also be low after deprivation.

A very high baseline serum osmolality would be found in diabetes insipidus (the water deprivation test would then be needed to determine whether the cause is cranial or nephrogenic). The baseline serum osmolality will be low in psychogenic polydipsia as the serum will be dilute due to drinking excessive amounts of water.

Question:

A neonate is brought to your surgery because his mother has noticed some skin lesions on his face. On examination there are multiple tiny white papules on the nose. What is the most likely diagnosis?

A.Erythema toxicum neonatorum

B.Infantile acne

C.Milia

D.Molluscum contagiosum

E.Folliculitis

Answer:Milia

Explanation:

Milia are a common and normal finding on examination of the newborn, seen in up to half of babies, typically on the face. They will resolve spontaneously over the course of a few weeks.

Question:

A 33-year-old primigravida woman is brought into the emergency department following a fall. She is 35 weeks pregnant and was seen at home by her husband to have fallen, followed by convulsions for around 1 minute and recovering. She has a past medical history of systemic lupus erythematosus and for the last 2 days, she describes having headaches and swollen feet. Observations showed a heart rate of 87bpm and blood pressure of 179/115 mmHg.

What is the most appropriate next step in her management?

A.Emergency caesarean section

B.Intramuscular steroids

C.Intravenous furosemide and monitor cardiotocography

D.Intravenous magnesium sulphate

E.Oral labetalol and hydralazine

Answer:Intravenous magnesium sulphate

Explanation:

Eclampsia - give magnesium sulphate first-line

Important for meLess important

Intravenous magnesium sulphate is correct. This woman has presented with eclampsia, diagnosed by the convulsions she has had (a tonic-clonic seizure). For the past 2 days, it is likely that she has had pre-eclampsia, as seen by the headaches and generalised oedema occurring after 20 weeks. The most appropriate initial management for eclampsia is IV magnesium sulphate to prevent further seizures and provide neuroprotection to the foetus followed by considering delivery. Both the mother and fetus should be assessed for signs of hypermagnesaemia, via symptoms of hyperreflexia and respiratory depression, and continuous cardiotocography monitoring.

Emergency caesarean section is incorrect. Whilst this may be required, the woman needs to be stabilised before this can be considered as she is still at high risk of having further seizures. Her blood pressure is 179/115 mmHg which is too high. Therefore the most appropriate initial management is immediate magnesium sulphate and then intravenous anti-hypertensives.

Intravenous furosemide and monitor cardiotocography is incorrect. Furosemide has no role in the lowering of blood pressure in eclampsia. The blood pressure is lowered with intravenous labetalol and hydralazine, which will be given as soon as the seizures have been controlled with magnesium sulphate.

Intramuscular steroids is incorrect. These are only required from 24 weeks to 34+6 weeks. This woman is 35 weeks pregnant meaning the fetal lungs should be fully developed by now. Furthermore, this is not the most important management at this stage even if the woman was earlier in her pregnancy.

Oral labetalol and hydralazine is incorrect. The blood pressure is very high and does require lowering. However, the first-line management, in pre-eclampsia, is intravenous labetalol and hydralazine, not oral. Furthermore, this would not reduce the risk of her seizures (eclampsia). The blood pressure is high from this woman having pre-eclampsia which whilst it can be controlled, can only be fully treated by delivery of the baby. The most important and first-line drug to prescribe in this acute scenario is intravenous magnesium sulphate to reduce the risk of further seizures. Once magnesium sulphate has been given, blood pressure-lowering medications such as intravenous labetalol and intravenous hydralazine can be given to reduce the risk of complications such as stroke and myocardial infarctions.

Question:

A 64-year-old female, Jane, is staying the weekend at her daughter Emily's house. Jane has type-2 diabetes and is treated with metformin, gliclazide and a subcutaneous GLP 1-agonist. Emily has type-1 diabetes and is treated with insulin. Both are currently well in themselves.

Over the weekend, Emily and Jane have an argument and Jane is left feeling upset. Emily goes out to do the shopping and upon returning finds her mother lying on the floor with a reduced level of consciousness. She calls the ambulance and they detect a low blood glucose level. She is taken to hospital where blood results demonstrate:

Insulin levels Elevated

C-peptide levels Elevated

Jane has not eaten for the past 4-hours.

What is the most likely cause of Jane's collapse?

A.Exogenous insulin overdose

B.GLP1-agonist overdose

C.Metformin overdose

D.Gliclazide overdose

E.Hypoglycaemia due to not eating

Answer:Gliclazide overdose

Explanation:

Gliclazide overdose causes hyperinsulinemia and high C-peptide levels

Important for meLess important

The most likely answer is a gliclazide overdose. Gliclazide functions by releasing vesicles stored within the pancreas containing insulin and C-peptide. This happens because insulin is derived from proinsulin and C-peptide is formed as a byproduct.

An insulin overdose would only cause raised insulin levels. C-peptide is not included in insulin vials.

Metformin has no direct effect on insulin levels.

GLP1-agonists enhance glucose-dependant insulin secretion. Jane has not eaten for 4-hours so there would be no glucose-mediate insulin release to cause the raised insulin and C-peptide levels.

Jane's low blood glucose could be explained by not eating. However, the high insulin and C-peptide levels cannot.

Question:

A 5-year-old boy is brought to the Emergency Department by his parents. He has been complaining of pain around his left hip for the past fortnight and has been limping. He is apyrexial and examination of his left hip joint shows a slight reduction in the range of movement. There are no signs of effusion or swelling. His right hip is unremarkable. Blood tests, including cultures, come back negative.

Which is the most appropriate initial management option for the underlying diagnosis?

A.Open reduction and internal fixation

B.Splinting of the limb

C.Reassurance and follow-up

D.Pavlik harness

E.Surgical correction

Answer:Reassurance and follow-up

Explanation:

Perthes' disease presenting under the age of 6 years has a good prognosis requiring only observation

Important for meLess important

This child is suffering from Perthes' disease. This is a degenerative condition affecting the hip joints of children, and classically is seen between the ages of 4 and 8. Perthes' is 5 times more common in boys and presents with hip pain, limping and reduced range of movement of the hip. Perthes' disease occurring under the age of 6 has a good prognosis and most cases will resolve with conservative management. For this reason, simple observation and follow-up is the preferred management choice, therefore this option is correct.

Open reduction and internal fixation is not the correct answer as this is used in the management of more complicated fractures, which this child does not have. Perthes' disease does not involve fracture of a bone and therefore does not require this management.

Splinting of the limb is not required in this scenario. Bracing, splinting or casting is not routinely recommended for the treatment of Perthe's disease, especially in under 6 years of age due to the good prognosis mentioned earlier. Splinting is more appropriate after injuries such as fractures.

A Pavlik harness is incorrect as this is the preferred management for developmental dysplasia of the hip (DDH). This is a separate disease entity that presents with asymmetrical hip creases and leg length discrepancies in babies. Risk factors for this include female sex and breech delivery.

Surgical correction of Perthes' disease is only indicated for older children (i.e. older than 6) or if there is severe deformity of the joint or limb. Neither of these is the case, therefore this is incorrect.

Question:

Your surgical registrar is busy in theatre. He asks you to quickly consent the next patient on the list who is having a small lipoma on his right arm excised. You are an F1 doctor and have never done this before. What should you do?

A.Consent the patient

B.Watch a video on the internet on the procedure, then consent the patient

C.Ask the registrar how to consent, then consent the patient

D.Tell the registrar you are unable to consent the patient

E.Ask another F1 colleague, who has an interest in surgery and probably seen the procedure before, to consent the patient

Answer:Tell the registrar you are unable to consent the patient

Explanation:

The GMC states: You must recognise and work within the limits of your competence (Good medical practice guidance number 14).

You can not consent for surgical operations if you are not familiar with the procedure.

The clinician who recommends the procedure is ordinarily responsible for discussing the matter with the patient and gaining consent. If it is not practical for the senior clinician to consent, it may be delegated to a suitably trained and qualified doctor who is sufficiently familiar with the procedure.

Guidance from: http://www.gmc-uk.org/guidance/goodmedicalpractice/applyknowledge.asp

Question:

A 32-year-old lady comes to see her GP. She is 2 months post her 2nd pregnancy and an erythematous rash has appeared on her face covering the forehead, nose, cheeks and chin. It came on rapidly and is slightly pustular. As well as this you can see she has red swollen eyelids. She is wearing a large hat and states that sunlight makes the rash worse.

What is the most likely diagnosis?

A.Pityriasis rosea

B.Systemic lupus erythematosus

C.Rosacea

D.Acne vulgaris

E.Atopic dermatitis

Answer:Rosacea

Explanation:

Sunlight can exacerbate rosacea

Important for meLess important

This a classic presentation of rosacea, an erythematous pustular rash appearing in a 30 to 50 year old woman which can also affect the eyes. Sunlight is a key feature which can exacerbate the symptoms. Atopic dermatitis usually presents as a dry itchy rash, it is uncommon for pityriasis rosea to present only on the face. Acne vulgaris is not exacerbated by sunlight. Lupus commonly presents differently as a malar butterfly rash although that does not commonly affect the forehead, it too can also be exacerbated by sunlight.

Question:

A 22-year-old lady, nulligravida presents with chronic pelvic and sacral pain with menstruation. Temperature = 37.2 degrees. On examination her posterior vaginal fornix is tender and there is uterine motion tenderness. Pelvic ultrasound is normal. What is the next diagnostic test?

A.Endometrial biopsy

B.Laparoscopy

C.Hysterosalpingography

D.CA-125

E.Serial beta-hCG

Answer:Laparoscopy

Explanation:

Laparoscopy is the gold-standard investigation for patients with suspected endometriosis

Important for meLess important

Question:

A 24-year-old presents to the GP complaining of flashbacks, nightmares and an inability to relax after he got into a fight in a pub 3-weeks ago. He has no past medical history of note and has tried breathing techniques to help calm himself down but nothing has worked.

What is the most appropriate management of this patient?

A.Prescribe diazepam

B.Prescribe sertraline

C.Refer for cognitive-behavioural therapy

D.Refer for debriefing

E.Refer for eye movement desensitisation and reprocessing

Answer:Refer for cognitive-behavioural therapy

Explanation:

Trauma-focused cognitive-behavioural therapy (CBT) should be used first-line for acute stress disorders

Important for meLess important

An acute stress disorder occurs within the first 4 weeks after a person is exposed to a traumatic event. The first-line management is trauma-focused cognitive behavioural therapy.

Diazepam and other benzodiazepines should only be prescribed, cautiously, for acute symptoms such as sleep disturbance. Although it may provide temporary relief, it will not improve the root cause of the issues in this scenario.

Drug treatments, such as sertraline and other selective serotonin reuptake inhibitors, should not be used as routine first-line treatment for adults.

Debriefings are single-session interventions after a traumatic event and are not a recommended treatment.

Eye movement desensitisation and reprocessing may be used as a treatment for more severe cases of post-traumatic stress disorder, which occurs after 4 weeks after exposure to a traumatic experience.

Question:

A 45-year-old female presents with a two month history of lethargy. Blood tests reveal the following:

Na+ 128 mmol/l

K+ 5.6 mmol/l

Urea 5.3 mmol/l

Creatinine 99 µmol/l

Total T4 66 nmol/l (70 - 140 nmol/l)

Which one of the following investigations is most likely to reveal the diagnosis?

A.Serum glucose

B.TSH

C.Free T4

D.Overnight dexamethasone suppression test

E.Short synacthen test

Answer:Short synacthen test

Explanation:

The short synacthen test is the best test to diagnose Addison's disease

Important for meLess important

Hyponatraemia and hyperkalaemia in a patient with lethargy is highly suggestive of Addison's disease. The thyroxine level is slightly low and she may indeed have co-existing hypothyroidism but this would not explain the hyperkalaemia

Question:

A 34-year-old woman attends her GP complaining fatigue over the last month. She is fit and well and takes no medications except for the combined oral contraceptive pill.

On examination, her chest is clear with no added heart sounds. There is a mild yellow discolouration of her sclera. Observations are normal.

Blood tests:

Hb 86 g/L Male: (135-180)

Female: (115 - 160)

Mean Cell Volume (MCV) 95 fl (82-100)

Reticulocytes 8 % (0.5 - 1.5)

Lactate dehydrogenase (LDH) 365 U/L (125 - 220)

Direct antiglobulin (Coombs') positive

Given the likely diagnosis, what is the most appropriate first-line treatment?

A.Intravenous iron

B.Oral iron

C.Rituximab

D.Splenectomy

E.Steroids

Answer:Steroids

Explanation:

Steroids (+/- rituximab) are generally used first-line in the management of patients with warm autoimmune haemolytic anaemia

Important for meLess important

This patient has normocytic anaemia, jaundice, raised reticulocytes and raised LDH which point towards haemolytic anaemia. A positive Coombs' test indicates that this is autoimmune haemolytic anaemia.

Steroids are generally used first-line in the management of patients with warm autoimmune haemolytic anaemia. Steroids are effective because they dampen the autoimmune response, thus halting antibody production against red blood cells and haemolysis.

Rituximab is incorrect as this would be added on if steroids were ineffective. Rituximab is a B cell depleting agent and although effective in dampening the autoimmune response in autoimmune haemolytic anaemia, carries immunosuppressive side effects, and thus is reserved for use as an add-on if steroids alone are ineffective.

Oral iron and intravenous iron are incorrect as this patient has autoimmune haemolytic anaemia, not iron deficiency anaemia. Replacing iron would not treat the cause of the anaemia and she would continue to produce antibodies against her red blood cells. Steroids and immunosuppressive agents are required to dampen the autoimmune response.

Splenectomy is 2nd or 3rd line, medical management is tried before surgical as splenectomy carries surgical risks and renders the patient permanently immunosuppressed: specifically at risk to encapsulated bacteria such as Streptococcus pneumoniae, Klebsiella and Haemophilus influenzae .

Question:

A 39 year old athlete attends his team doctor for an annual physical. Which of the following features on his ECG would be a cause for concern?

A.Sinus bradycardia

B.Left bundle branch block

C.Type 1 atrioventricular block

D.Incomplete right bundle branch block

E.Wenckebach phenomenon

Answer:Left bundle branch block

Explanation:

Left bundle branch block is never normal and is usually associated with underlying ischaemic or structural heart disease.

Normal variants on the ECG:

Sinus arrhythmia

Right axis deviation (tall and thin individuals)

Left axis deviation (short, obese individuals)

Partial right bundle branch block

Athletes often have a high vagal tone which results in additional normal variants:

Sinus bradycardia

1st degree atrioventricular block

Wenckebach phenomenon (2nd degree atrioventricular block Mobitz type 1)

Junctional escape rhythm

Question:

A 78-year-old patient presents to the emergency department with a fractured neck of femur. The patient has a past medical history of polymyalgia rheumatica, ischaemic heart disease, and dyspepsia. Her medications include bisoprolol, ramipril, simvastatin, aspirin, omeprazole and prednisolone. As part of the investigations, a bone profile is done.

What are the most likely results for this patient?

A.PTH - high, calcium - high, phosphate - low

B.PTH - high, calcium - low, phosphate - low

C.PTH - high, calcium - normal, phosphate - low

D.PTH - high, calcium - normal, phosphate - normal

E.PTH - normal, calcium - normal, phosphate - normal

Answer:PTH - normal, calcium - normal, phosphate - normal

Explanation:

Osteoporosis is commonly associated with normal blood test values (e.g. normal ALP, normal calcium, normal phosphate, normal PTH)

Important for meLess important

The patient has osteoporosis secondary to the chronic use of systemic steroids. In osteoporosis the bone profile results are normal.

Primary hyperparathyroidism results in high PTH and calcium with a low phosphate.

Osteomalacia results in high PTH with low calcium and phosphate.

CKD results in high PTH with normal calcium and low phosphate.

Tertiary hyperparathyroidism results in high PTH with normal calcium and phosphate.

Question:

A 24-year-old woman attends your clinic; she is currently 22 weeks pregnant, with no complications thus far.

2 days ago, her sister and niece visited. Her niece was feeling under the weather at the time, and has since taken ill with chickenpox. The patient is worried for her pregnancy; she has no symptoms herself, but upon questioning, cannot remember whether or not she had chickenpox as a child herself.

What should the next step be in managing this patient?

A.Arrange a blood test for varicella antibodies and await the result

B.Arrange a blood test for varicella antibodies, then immediately commence varicella-zoster immunoglobulin (VZIG) and adjust once the result arrives

C.Prescribe aciclovir

D.Prescribe varicella-zoster immunoglobulin (VZIG)

E.Administer the varicella-zoster vaccine

Answer:Arrange a blood test for varicella antibodies and await the result

Explanation:

Chickenpox exposure in pregnancy > 20 weeks (if not immune): antivirals or VZIG should be given at days 7-14 post-exposure, not immediately

Important for meLess important

As per RCOG and Green-top guidelines, when exposure to chickenpox has occurred, prophylaxis depends on the mother's immunity status. Since there is doubt in this scenario, the correct option is to arrange an urgent blood test to check for varicella antibodies. If not immune, RCOG guidance suggests either varicella-zoster immunoglobulin (VZIG) or aciclovir can be given to a pregnant woman >20 weeks. If she was less than 20 weeks pregnant and not immune, only VZIG would be offered, not a choice between VZIG or aciclovir.

VZIG is effective up to 10 days post-exposure, hence the feasibility of conducting a blood test and obtaining the results first. There is no need to commence VZIG immediately after the blood test.

Prescribing aciclovir or VZIG immediately, without being sure of her immune status, are thus incorrect options.

Reassuring the patient and sending her away to monitor symptoms would not be following correct post-exposure prophylaxis protocol.

The varicella-zoster vaccine is not part of the UK's vaccination schedule, nor does it play a role in the management of pregnant women.

Question:

A 20-year-old man presents to the emergency department with palpitations. He denies chest pain or syncope. On examination, his heart rate is 150 beats per minute and his blood pressure is 115/75 mmHg. There are no signs of heart failure. The patient has no past medical history.

An ECG shows a regular narrow-complex tachycardia with no visible P waves. The rhythm is not terminated with vagal manoeuvres.

What is the most appropriate management?

A.Give 6mg adenosine and repeat the dose at 5 minutes if required

B.Give 6mg adenosine with a further 12mg if this does not terminate the rhythm

C.Give intravenous amiodarone

D.Give intravenous beta-blockers

E.Give intravenous verapamil

Answer:Give 6mg adenosine with a further 12mg if this does not terminate the rhythm

Explanation:

For an SVT, the Resus Council recommend escalating adenosine doses of 6mg → 12mg → 18 mg

Important for meLess important

A regular narrow-complex tachycardia is most likely atrioventricular nodal re-entry (supraventricular tachycardia). If there are no adverse features present, vagal manoeuvres should be attempted. If these are not successful, escalating doses of intravenous adenosine are given, starting with 6mg. The correct answer is, therefore, give 6mg adenosine with a further 12mg if this does not terminate the rhythm.

Give 6mg adenosine and repeat the dose at 5 minute intervals if required is incorrect. If 6mg does not terminate the rhythm, 12mg is given, followed by 18mg if still required. Furthermore, it is not necessary to wait until 5 minutes to repeat the dose. The dose can be repeated at 1-2 minutes.

Give intravenous amiodarone is incorrect. This is used for regular broad-complex tachycardias, not regular narrow-complex tachycardias.

Intravenous beta-blockers are used for irregular narrow complex tachycardias (most commonly atrial fibrillation), not regular narrow complex tachycardias.

Verapamil is given to patients with supraventricular tachycardia if they cannot tolerate adenosine; for example, if they have asthma, as adenosine is a bronchoconstrictor. There is no suggestion in this patient's history that he requires verapamil.

Question:

A paediatric nurse bleeps you about a 5-month-old child with oromucosal swelling, a widespread rash, and difficulty in breathing. The child is currently being treated for suspected meningitis and has received intravenous cefotaxime.

What is the most appropriate medication and dose to treat this situation?

A.IV adrenaline 150 mcg

B.IM hydrocortisone 25 mcg

C.IV hydrocortisone 100 mg

D.IM adrenaline 300 mcg

E.IM adrenaline 100 - 150 mcg

Answer:IM adrenaline 100 - 150 mcg

Explanation:

< 6 months adrenaline dose for anaphylaxis 100 - 150 mcg (0.1 - 0.15ml 1 in 1,000)

Important for meLess important

This is a typical presentation of anaphylaxis. From the resuscitation council anaphylaxis guidelines, the correct answer is IM adrenaline 100 - 150 micrograms for a child of <6 months old, depending on the size of the infant.

The route of administration of adrenaline in anaphylaxis is intramuscular. Unless under specialist advice intravenous adrenaline should not be given. The route of administration in cardiac arrest is intravenous.

IM/ IV hydrocortisone is no longer recommended for anaphylaxis.

IM adrenaline 300 microgram is the correct dose for an older child (6 - 12 years old).

Epipens, the most commonly used adrenaline autoinjector in the United Kingdom, are found in 2 doses: 150mcg and 300mcg. Epipen Jr (paediatric pens) are 150mcg.

Question:

A 67-year-old man presents to the Emergency Department with central crushing chest pain. His ECG is shown below:

© Image used on license from Dr Smith, University of Minnesota

What is shown on the ECG?

A.Anterior non-ST elevation MI + atrioventricular block

B.Inferior ST elevation MI + atrioventricular block

C.Inferior ST elevation MI + left bundle branch block

D.Inferior ST elevation MI + right bundle branch block

E.Anterior non-ST elevation MI + complete heart block

Answer:Inferior ST elevation MI + atrioventricular block

Explanation:

There is ST elevation in the II, III and aVF diagnostic of an inferior myocardial infarction. The PR interval is significantly prolonged (first degree heart block) suggestive that the AV node may have been affected by the infarction.

Question:

You are asked to review a 65-year-old woman who has become breathless on the surgical ward. Earlier in the day she had a laparoscopic cholecystectomy for gallstone disease. A chest x-ray has already been obtained:

© Image used on license from Radiopaedia

What complication has developed?

A.Pneumothorax

B.Intestinal perforation resulting in pneumoperitneum

C.Subcutaneous emphysema

D.Pulmonary embolism

E.Acute respiratory distress syndrome

Answer:Subcutaneous emphysema

Explanation:

This radiograph demonstrates subcutaneous (surgical) emphysema which is a known complication of laparoscopic surgery. If the anterior chest wall is affected air can outline the pectoralis major muscle, giving rise to the 'ginkgo leaf' sign.

Question:

A 17-year-old female presents to her GP with a sore throat and fevers for the past 3 days. She has no past medical history and takes no regular medication. On examination her throat is red with bilateral tonsillar swelling and bilateral cervical lymphadenopathy. Her pulse rate is 83 bpm and her blood pressure is 124/76 mmHg.

Which of the following features would be suggestive of a diagnosis of bacterial tonsillitis?

A.A temperature of 37.8ºC

B.Non-tender cervical lymphadenopathy

C.Bilateral tonsillar enlargement without surface exudates

D.A productive cough

E.The absence of a cough

Answer:The absence of a cough

Explanation:

The absence of a cough favors a diagnosis of tonsillitis

Important for meLess important

The likelihood that a diagnosis of pharyngitis or tonsillitis is due to a bacterial source is decided based on the Centor criteria. The criteria are as follows:

• Temperature >38ºC

• Tender anterior cervical lymphadenopathy

• Absence of a cough

• Exudate present on tonsils

A diagnosis of bacterial infection is likely if a person has 3 or 4 out of these 4 criteria.

Question:

The following symbol appears in the British National Formulary:

What does it mean?

A.Can be prescribed by a pharmacist

B.Price of manufacture

C.Should only be prescribed by a specialist

D.Prescription-only medicine

E.Proprietary-only medicine

Answer:Prescription-only medicine

Explanation:

Question:

A 22-year-old male presents to the emergency department with abdominal pain. He has described it coming on over the past day, getting worse, and mostly in the right upper quadrant. He also reports some fevers and general malaise over the past week.

He reports drinking about 10 units a week, being a non-smoker, and never taking recreational drugs. He recently returned from a post-graduation holiday travelling around South East Asia. He stayed mostly in hostels and enjoyed eating the street food. He did not get any vaccines for the trip but has taken malaria prophylaxis. He is sexually active with his long-term female partner.

On examination, he is clinically jaundiced and has hepatomegaly. There are no signs of splenomegaly or lymphadenopathy.

Blood tests are ordered, and an ultrasound of the liver and bile duct shows no abnormalities or stones.

Given the likely diagnosis what is the treatment and prognosis

A.Supportive with no increased risk of hepatocellular carcinoma in the future

B.Supportive with increased risk of hepatocellular carcinoma in the future

C.Antiviral treatment with no increased risk of hepatocellular carcinoma in the future

D.Antiviral treatment with increased risk of hepatocellular carcinoma in the future

E.Liver transplant with increased risk of hepatocellular carcinoma in the future

Answer:Supportive with no increased risk of hepatocellular carcinoma in the future

Explanation:

Consuming undercooked meat / unclean water in developing countries is a risk factor for hepatitis A

Important for meLess important

Hepatitis A or possibly Hepatitis E are the main differentials here (although Hep E is classically pig meat related in exams). Symptoms for Hep A often appear 2 - 4 weeks after transmission so recent travel to developing countries, especially if consuming undercooked meat / unclean water. Both are rarely serious in otherwise healthy and non-pregnant patients, and can be treated supportively. There is no increased risk of hepatocellular carcinoma in the future.

Acute Hep B or C could cause similar symptoms but the risk factors are not present, which would classically be intravenous drug use. These conditions may need antiviral treatment.

EBV is a possibility but usually comes with splenomegaly and lymphadenopathy.

Ascending cholangitis is good to think about here but lack of stones or dilation of bile duct on ultrasound put this lower down the list of differentials.

Question:

A 53-year-old male presents with difficulty speaking clearly and some swallowing difficulty. On examination of his cranial nerves, it is noted that he has an overactive gag reflex on both sides, tongue spasticity and the tongue seems to be wasted with fasciculations.

What is the most likely diagnosis?

A.Multiple sclerosis

B.Huntington's disease

C.Motor neuron disease

D.Friedreich's ataxia

E.Brainstem stroke

Answer:Motor neuron disease

Explanation:

Amyotrophic lateral sclerosis (ALS) is characterised by death of both upper and lower motor neurons in the motor cortex of the brain, the brain stem, and the spinal cord. Lower motor neurone signs include flaccid paralysis, weakness, wasting, and fasciculations. Upper motor neurone signs include spastic paralysis, pyramidal weakness, hyper-reflexia and up-going plantars.

About 25% of cases of ALS begin as progressive bulbar palsy termed 'bulbar-onset' ALS. The lower and upper motor neurone signs suggest that ALS is the correct answer as bulbar palsy would present with only lower motor neurone signs. Upper motor neurone signs are not present in bulbar palsy. Similarly, pseudobulbar palsy would only present with upper motor neurones and not lower motor neurone signs.

Question:

A 62-year-old female with a 40 pack year history of smoking is investigated for a chronic cough associated with haemoptysis. Bronchoscopy reveals a 4 cm tumour confined to the right main bronchus. A biopsy taken shows small cell lung cancer (SCLC). Extensive staging investigations only show evidence of nodal involvement in the ipsilateral peribronchial nodes, giving a TNM grading of T2, N1, M0. What is the most appropriate management?

A.Laser therapy

B.Chemotherapy + radiotherapy

C.Surgery

D.Radiotherapy

E.Interferon-alpha

Answer:Chemotherapy + radiotherapy

Explanation:

Surgery plays little role in the management of small cell lung cancer, with chemotherapy being the mainstay of treatment. Adjuvant radiotherapy is also now given in patients with limited disease.

Having said that recent studies have supported a role for surgery in patients with very early stage disease (e.g. T1, N0, M0). Please see the NICE guidelines for more details.

Question:

A 21-year-old man is brought into the emergency department with a 1-day history of shortness of breath, which began this morning whilst heading to work.

On examination, he is tachycardic and tachypnoeic with an oxygen saturation of 94% on 15L of oxygen.

A chest x-ray is requested:

© Image used on license from Radiopaedia

Based on the diagnosis, what is the next step in this patient's management?

A.Chest drain

B.Needle aspiration

C.Non-invasive ventilation

D.Talc pleurodesis

E.Urgent cardiothoracic opinion

Answer:Needle aspiration

Explanation:

This patient's chest x-ray demonstrates a right-sided pneumothorax. Along the lateral edge of the right lung from the apex to the diaphragm, there is an absence of lung markings representing air within the pleural space as opposed to air within the lung. The trachea is positioned centrally and there is no evidence of mediastinal shift which confirms that this patient has a simple pneumothorax.

The management of pneumothorax depends on the type of pneumothorax (primary, secondary, iatrogenic or traumatic). This patient is a young male with no past medical history or history of recent surgery or trauma. Therefore, it is likely that he has a primary pneumothorax. This patient has a considerably sized pneumothorax on his chest x-ray (i.e. >2cm). Therefore, the immediate management should be needle aspiration. If the rim of air remains >2cm or the patient remains short of breath then a chest drain should be inserted.

Non-invasive ventilation is not indicated for a patient with a pneumothorax as the positive pressure can increase the pneumothorax further and cause a tension pneumothorax. Although this patient has a large oxygen requirement, it is likely that this will improve following aspirating or draining the pneumothorax.

Talc pleurodesis is a method of sticking together the parietal and visceral pleura to prevent recurrent pneumothoraces and pleural effusions. From the clinical history, it seems that this is the patient's first pneumothorax and talc pleurodesis would not be recommended at this stage.

A cardiothoracic opinion should be obtained in the event of a traumatic pneumothorax such as following a fall or road traffic collision sustaining rib fractures. In the absence of trauma, a cardiothoracic opinion would not be indicated.

Question:

A 46-year-old man presents to the GP complaining of a dry cough and dyspnoea over the last 3 weeks. He complains that his symptoms become much worse when he goes running, which makes him feel faint. His past medical history includes a kidney transplant 4 years ago. Examination of the chest is unremarkable.

What is the most likely diagnosis?

A.Acute Respiratory Distress Syndrome (ARDS)

B.Bacterial pneumonia

C.Legionella pneumonia

D.Pneumocystis jirovecii pneumonia (PJP)

E.Pulmonary tuberculosis

Answer:Pneumocystis jirovecii pneumonia (PJP)

Explanation:

Pneumocystis jiroveci pneumonia causes desaturation on exercise

Important for meLess important

The correct answer is PJP. This patient is immunosuppressed due to his kidney transplant and is at risk of opportunistic infections such as PJP. The classic clinical features of PJP are desaturation on exercise and a normal chest examination. In this patient, the fact that his breathlessness increases when exercising is due to desaturation on exertion.

ARDS is incorrect in this case. If the patient had ARDS, the presentation would be much more acute, and the patient would be much more ill. Furthermore, there will be symptoms of a systemic precipitating disease such as sepsis. It should be noted that ARDS can complicate PJP.

Bacterial pneumonia is not the correct answer in this case. Whilst patients who are immunosuppressed are at higher risk of bacterial pneumonia, this is not a typical presentation of bacterial disease. A more common presentation would be a productive cough, which is not seen in this case.

Legionella pneumonia is not the correct answer in this case. There is no history of contact with legionella-infected water (e.g. lakes, rivers, or air conditioning systems). Furthermore, there should be crackles and rhonchi on chest examination as well as a productive cough, which suggests that this patient doesn't have legionella.

Pulmonary tuberculosis is incorrect in this case. Tuberculosis would more commonly present with haemoptysis, as well as pleuritic chest pain and dyspnoea. Night sweats and cachexia would also be expected, which are not seen in this patient.

Question:

A 13-year-old girl is brought in by her mother with epistaxis. This occurs intermittently and she has not identified any triggers. She has had previous surgery for enlarged adenoids and has a history of anaphylaxis to peanuts. The examination is unremarkable, no bleeding focus is identified and investigations reveal the following:

Hb 121 g/L Male: (135-180)

Female: (115 - 160)

Platelets 252 \* 109/L (150 - 400)

WBC 5 \* 109/L (4.0 - 11.0)

Which of the following would be most appropriate to suggest?

A.Perform cautery of the anterior nasal septum

B.Recommend Naseptin cream (chlorhexidine/neomycin)

C.Recommend first aid measures during nose bleeds

D.Refer to ENT surgeon

E.Refer to the emergency department

Answer:Recommend first aid measures during nose bleeds

Explanation:

Naseptin (chlorhexidine/neomycin) cream contains peanut oil

Important for meLess important

The most appropriate option to suggest here is the first aid measures during nose bleeds given she has a normal examination and blood counts.

Cautery of a bleeding focus can be performed in primary care if the practitioner has the experience and is comfortable doing this. This should only be done if a bleeding focus is identified and should not be done bilaterally to avoid perforation. In this situation, there were no abnormalities identified on examination and therefore it would not be performed.

This patient has anaphylaxis to peanuts and Naseptin contains peanut oil. Therefore this management option is contraindicated and could cause a life-threatening reaction.

Referring this patient to an ENT surgeon could be recommended if the clinician is unsure about management. Although it might not be the best initial management, it is definitely appropriate if the issue recurs.

Recommending attendance to the emergency department is appropriate if the bleeding does not stop after appropriate first aid measures. These first aid measures would include pressure below the nasal bones on the nasal cartilage while sitting forward for 20 minutes.

Question:

A one-year-old child presents to the GP with his mother for his vaccinations. His mother is pleased to note that his birthmark, which was a pink flat mark on his eyelids and on the nape of his neck has almost faded entirely.

What is the most likely birthmark this child has?

A.Congenital dermal melanocytosis

B.Congenital moles

C.Port-wine stain

D.Salmon patches

E.Strawberry haemangioma

Answer:Salmon patches

Explanation:

Salmon patches are a vascular birthmark which usually self resolve

Important for meLess important

Salmon patches or 'stork bites' are small pink or red patches that typically form on the eyelids, between the eyes or on the back of the neck which typically fade and disappear by the age of two which matches the description above.

Congenital dermal melanocytosis refers to areas of skin which is blue or purple-coloured, typically on the baby's lower back and buttocks and so would not match the description in the history.

Congenital moles would not typically occur on the eyelids and are dark brown or black in colour and would therefore not match the description above.

A port-wine stain is a flat, pink, red, or purple coloured birthmark and does not disappear over time and so would not be the right answer in this scenario.

Strawberry haemangiomas are bright or dark red in colour, raised, and often develop in the first two months. They may not even be present at birth and most tend to disappear later on by the age of 9 years of age.

Question:

A patient who is known to be a heroin user is found collapsed in the waiting room. He is blue around the lips, has a pulse of 60 / min and is taking only occasional breaths. Oxygen is given. What is the most appropriate next step?

A.Give a fluid bolus

B.Perform an ECG

C.Intravenous flumazenil

D.Intravenous naloxone

E.Intramuscular benzylpenicillin

Answer:Intravenous naloxone

Explanation:

This patient has respiratory depression secondary to a heroin overdose.

Question:

Which one of the following is a risk factor for developmental dysplasia of the hip?

A.Vertex presentation

B.Oligohydramnios

C.Male sex

D.Maternal diabetes mellitus

E.Polyhydramnios

Answer:Oligohydramnios

Explanation:

Question:

A 27-year-old woman has recently been diagnosed with schizophrenia. Her family are worried about the prognosis of the illness.

Which of the following is associated with the worst prognosis for long term schizophrenia that is poorly controlled?

A.Gradual onset

B.No family history

C.Stressful event which precipitated illness

D.Sudden onset

E.University degree

Answer:Gradual onset

Explanation:

Gradual onset schizophrenia is a poor prognostic indicator

Important for meLess important

Gradual onset schizophrenia is a poor prognostic indicator. The other options are all associated with a better prognosis. Some studies have shown a link between high intelligence and higher rate of suicide, but in general, higher intelligence have a better prognosis for schizophrenia.

Question:

You are an FY-1 doctor working on a gynaecology ward. One of your patients has just been diagnosed with atypical endometrial hyperplasia. She is post-menopausal and otherwise fit and well. What is the ideal management of this condition?

A.Total hysterectomy

B.Watch and wait

C.Bilateral salpingo-oophorectomy

D.Total hysterectomy with bilateral salpingo-oophorectomy

E.Radiotherapy

Answer:Total hysterectomy with bilateral salpingo-oophorectomy

Explanation:

A total hysterectomy with bilateral salpingo-oophorectomy, in addition, is advisable for all postmenopausal women with atypical endometrial hyperplasia, due to the risk of malignant progression

Important for meLess important

A total hysterectomy is advisable for all women, due to the risk of malignant progression, with bilateral salpingo-oophorectomy in addition for postmenopausal women. This lady is postmenopausal and thus just a total hysterectomy is not advised. In addition, a bilateral salpingo-oophorectomy without removal of the endometrium is not advised.

Due to its malignant potential, a watch and wait approach is not advisable, in addition, due to it not being malignant yet, radiotherapy is not advised either.

Question:

A 32-year-old woman is seen in the rheumatology clinic for assessment of her systemic lupus erythematosus (SLE). The rheumatologist suggests starting her on hydroxychloroquine as she complains of frequent flares of pain in her wrists and hands.

Which of the following is it important to counsel the patient on?

A.Risk of haemorrhagic cystitis

B.Risk of pulmonary fibrosis

C.Risk of retinopathy

D.Risk of thyroid dysfunction

E.Urine and tears may become orange in colour

Answer:Risk of retinopathy

Explanation:

Hydroxychloroquine - may result in a severe and permanent retinopathy

Important for meLess important

All medications have an associated side effect profile. For finals, it is important to be aware of the notable side effects of several key types of medications, including the commonly used disease-modifying anti-rheumatic drugs (DMARDs). Other important medications include lithium, amiodarone and medications used to treat tuberculosis.

Hydroxychloroquine is used in the management of rheumatoid arthritis and systemic/discoid lupus erythematosus. Importantly, there is a risk of retinopathy and so patients on hydroxychloroquine should be advised to look out for visual symptoms and should have their visual acuity assessed annually.

Haemorrhagic cystitis is associated with the use of cyclophosphamide.

There are several drugs that can potentially cause pulmonary fibrosis, for example, methotrexate, amiodarone and nitrofurantoin.

Amiodarone is associated with thyroid dysfunction and can lead to either hypothyroidism or hyperthyroidism.

Rifampicin, used in the treatment of tuberculosis is known to sometimes cause orange discolouration of urine and tears. It can also cause hepatitis.

Question:

A 9-year-old boy is brought into the emergency department via ambulance with his father, having his first reported seizure. The ambulance crew report that the child starting fitting approximately 35 minutes ago. Intravenous access has been established and he has already been given two doses of IV lorazepam, but continues fitting. Blood glucose is 5.0 mmol/l. What is the next step in the child's medical treatment?

A.IV diazepam

B.IV phenobarbital

C.IV phenytoin

D.IV lorazepam

E.Rapid sequence induction using thiopental sodium

Answer:IV phenytoin

Explanation:

In status epilepticus, a phenytoin infusion should be given if not responding to benzodiazepines

Important for meLess important

NICE guidelines have been published regarding management of paediatric status epilepticus (defined as a convulsion lasting longer than 30 minutes, or repeated convulsions lasting longer than 30 minutes without recovery of consciousness in between each convulsion).

Alongside other supportive measures, medical treatment proceeds in a stepwise manner:

1 Buccal midazolam/ IV lorazepam

2 IV lorazepam

3 IV phenytoin (phenobarbital if already on regular phenytoin)

4 Rapid sequence induction of anaesthesia using thiopental sodium

Since the child has already been given two doses of IV lorazepam, the most appropriate next step is IV phenytoin. It must be noted that if the child had previously been diagnosed with epilepsy and was already on phenytoin, then phenobarbital would be used instead.

Question:

A 32-year-old woman presents to her general practitioner with joint pain. She has previously attended multiple times for her joint pain, though this was attributed to her BMI of 30kg/m² and weight loss was recommended.

On examination, she has a large effusion of the left knee, with a reduced range of motion. The metacarpophalangeal joints of her right hand appear swollen and her fingers appear sausage-like. Her left-hand shows no obvious deformity. She is HLA-B27 positive.

The patient's blood pressure is 138/87mmHg and her temperature is 36.7ºC.

Given this information, what is the most likely diagnosis?

A.Gout

B.Osteoarthritis

C.Psoriatic arthritis

D.Rheumatoid arthritis

E.Septic arthritis

Answer:Psoriatic arthritis

Explanation:

An asymmetrical presentation suggests psoriatic arthritis rather than rheumatoid

Important for meLess important

The correct answer is psoriatic arthritis, as this is the most likely cause of asymmetrical polyarthritis in an afebrile patient. Although no skin lesions are described in this patient, it is estimated that approximately 15% of patients with psoriatic arthritis have had no prior psoriatic skin lesions. Dactylitis, sometimes described as 'sausage fingers', is a common finding in patients with psoriatic arthritis. HLA-B27 is also commonly associated with psoriatic arthritis.

Gout is incorrect, as this would be unusual in a woman under 60 and commonly begins in the metatarsophalangeal joint of the big toe. Although gout is a cause of asymmetrical arthritis, psoriatic arthritis is more likely in light of the patient's age, sex, dactylitis and nail changes.

Rheumatoid arthritis is incorrect, as this typically causes symmetrical polyarthritis. Rheumatoid arthritis would be less likely than psoriatic arthritis to cause the dactylitis or nail changes found in this patient. Furthermore, HLA-DRB1 would be more likely in a patient with rheumatoid arthritis than HLA-B27.

Septic arthritis is incorrect, as this would be more likely to present as an acute monoarthritis in a febrile patient. As this patient has asymmetrical polyarthritis and is afebrile, psoriatic arthritis is more likely.

Osteoarthritis is incorrect, as this is would be an unlikely cause of polyarthritis in a 32-year-old patient. Although obesity is associated with osteoarthritis and commonly affects the knees, osteoarthritis would not explain the patient's dactylitis (sausage fingers) and nail changes.

Question:

A 70-year-old man presents to the emergency department with a 2-day history of lower abdominal pain and rectal bleeding. He reports that over the past 2-3 months he has had bouts of intermittent lower abdominal pain. He usually opens his bowels once every 4-5 days and complains of passing hard stools. There is no past medical history of note.

On examination, he has a temperature of 38.1ºC with a heart rate of 80 beats/min and a blood pressure of 122/85mmHg. There is palpable tenderness with guarding in the left iliac fossa.

What is the most appropriate long-term management for this patient?

A.Increased dietary fibre intake

B.Intravenous antibiotics

C.Intravenous hydrocortisone

D.Laparoscopic resection

E.Perianal metronidazole

Answer:Increased dietary fibre intake

Explanation:

Increased dietary fibre intake is helpful in diverticular disease

Important for meLess important

This patient has diverticulitis, given the history of left iliac fossa pain, rectal bleeding and diarrhoea. A history of constipation makes the diagnosis even more likely, on a background of diverticular disease. The long term management of diverticular disease is to increase dietary fibre intake to reduce outpouching of the walls of the colon.

Intravenous antibiotics may be given for moderate-severe cases of diverticulitis. However, they would not form part of the long-term management of this patient.

Intravenous hydrocortisone is given for the treatment of inflammatory bowel disease (IBD). Given the age of onset of 70 years, IBD seems to be a much less likely diagnosis.

Laparoscopic resection forms part of the management for recurrent episodes of acute diverticulitis. As this is the first presentation of diverticulitis, laparoscopic resection would be inappropriate.

Perianal metronidazole is used in the management of rectal Crohn's disease. Crohn's disease is a type of IBD that often presents in the younger decades of life and usually presents as a combination of abdominal pain, diarrhoea and weight loss. Rectal bleeding is a less common feature.

Question:

A 20-year-old man presents to the Emergency Department after falling over whilst playing football. He complains of pain in his left shoulder.

The shoulder x-ray is shown below:

© Image used on license from Radiopaedia

What is the cause of the shoulder pain?

A.Salter-Harris type IV fracture

B.Left-sided rib fractures

C.Salter-Harris type I fracture

D.Acromioclavicular joint injury

E.Anterior shoulder dislocation

Answer:Anterior shoulder dislocation

Explanation:

An anteroinferior shoulder dislocation is demonstrated. The acromioclavicular joint, the scapula, and the left-sided ribs appear unremarkable.

The patient is too old to be classified as having a Salter-Harris fracture.

Question:

A 64-year-old woman is brought into resus due to acute onset of reduced rousability, tetraparesis, and seizure. The ambulance crew hand-over states that on the scene she had a GCS of 9, pinpoint pupils, and a left-sided facial droop. She has a past medical history of poorly controlled hypertension, type 2 diabetes mellitus, and fibromyalgia. She is poorly compliant with her medications (ramipril, metformin, fluoxetine, paracetamol, and oral morphine syrup) and has no known drug allergies.

Considering her presentation, what is the most likely diagnosis?

A.Anterior cerebral artery haemorrhage

B.Fluoxetine overdose

C.Lateral medullary syndrome

D.Opioid overdose

E.Pontine haemorrhage

Answer:Pontine haemorrhage

Explanation:

Pontine haemorrhage commonly presents with reduced GCS, paralysis and bilateral pin point pupils

Important for meLess important

This patient is presenting with symptoms consistent with pontine haemorrhage. These patients will predominantly present with a decreased GCS and may also have signs of seizure, tetraparesis, and cranial nerve palsy. This patient has had a sudden onset of significant, life-threatening symptoms and is likely to, therefore, have a large expanding haematoma. Her facial droop is also consistent with a pontine haemorrhage. Prognosis is poor for this patient - overall mortality for the condition is 30-90% depending on the rate of reduction in GCS and significance of symptoms at onset.

Anterior cerebral artery haemorrhages lead to contralateral upper limb hemiparesis and sensory loss. They are not typically associated with cranial nerve symptoms, seizures or reduced GCS unless the bleed is significant.

Fluoxetine overdose is unlikely to cause these symptoms. While a selective-serotonin-reuptake inhibitor (SSRI) overdose can cause a reduced GCS, patients can also appear agitated and restless with tachycardia and hypertension. Rather than pinpoint pupils, she would have dilated pupils.

Lateral medullary syndrome is due to a posterior inferior cerebellar artery stroke. This presents with loss of temperature and pain sensation to the ipsilateral face and contralateral trunk and limbs. There is also slurring of the speech and ataxic gait. Patients do not have pinpoint pupils, reduced GCS, or tetraparesis in typical presentations.

Opioid overdose can cause pinpoint pupils and reduced GCS. The unilateral facial droop should indicate that this diagnosis is less likely. Furthermore, the patient's history of poorly controlled hypertension should lead to increased suspicion of pontine haemorrhage as this is typically an underlying cause of these strokes.

Question:

A 17-year-old girl attends her local pharmacy seeking the morning-after pill at 11 am on Tuesday. She explains she had unprotected sexual intercourse at about 10 pm on the previous Saturday night. She is not currently on any birth control and does not wish for any at present. Her friend took levonorgestrel a few weeks ago, and she makes a request for the same one.

Can she have levonorgestrel as a method of emergency contraception?

A.Yes, as it can be taken up to 72 hours later

B.Yes, as it can be taken up to 120 hours later

C.No, as it can only be taken up to 48 hours later. She can have ulipristal acetate, as this can be taken up to 72 hours later

D.No, as it can only be taken up to 48 hours later. She can have ulipristal acetate, as this can be taken up to 120 hours later

E.No, she cannot have levonorgestrel or ulipristal acetate, as these can only be taken up to 48 hours later. She can have the copper coil, as this can be taken up to 120 hours later

Answer:Yes, as it can be taken up to 72 hours later

Explanation:

Levonorgestrel must be taken within 72 hours of UPSI

Important for meLess important

This girl presents 61 hours following an episode of unprotected sexual intercourse. At this time, all 3 types of emergency contraception (levonorgestrel, ulipristal acetate and the copper coil) can still be used. At this stage, the oral options' efficacy will have decreased but they can still be taken.

Levonorgestrel can be taken up to 72 hours after the episode of unprotected sexual intercourse (UPSI), therefore this is the correct answer.

Levonorgestrel cannot be taken up to 120 hours later, and therefore this answer option is incorrect.

Levonorgestrel can be taken after 48 hours, and also ulipristal acetate can be taken up to 120 hours later. Therefore it is incorrect to say it can only be taken up to 48 hours later, and ulipristal acetate can be taken up to 72 hours later.

Levonorgestrel can be taken after 48 hours. Even though it is true that ulipristal acetate can be taken up to 120 hours later, it is not correct to say that levonorgestrel can only be taken up to 48 hours later and therefore this option is incorrect.

Both levonorgestrel and ulipristal acetate can be taken after 48 hours. Whilst it is true that the copper coil can be inserted up to 120 hours later, she has stated she does not wish for any birth control and therefore offering her this would be inappropriate. Therefore, this answer option is incorrect.

Question:

A 27-year-old female presents to the medical take.

She has been unable to get an appointment at her GP and is concerned as she has noticed frank haematuria for the last 8 days. She has no dysuria or frequency. She reports she has noticed four episodes of haematuria previously, but these have always resolved spontaneously after a day or two.

She reports she is usually fit and well apart from hearing aids that she has needed since birth. This does not seem unusual to her as both her younger sister also has needed hearing aids since birth.

She works as a primary school teacher and lives with her mother and her sister. Her parents divorced when she was 7 and she has not had any contact with her father since.

On examination, she has an abdomen that is soft and non-tender. Her Rinne test was positive and her weber test was equally heard in both ears.

Investigations show:

Haemoglobin 127g/l

White cells 6 x 10^9/l

Platelets 376 x 10^9/l

Sodium 139 mmol/l

Potassium 5.2 mmol/l

Urea 13 mmol/l

Creatinine 292 µmol/l

Urine dip:

Blood +++

Protein +++

Leucocytes negative

Nitrites negative

What is the most likely diagnosis?

A.IgA nephropathy

B.Minimal change disease

C.Alport syndrome

D.Rapidly-progressive glomerulonephritis

E.Goodpasture syndrome

Answer:Alport syndrome

Explanation:

This young woman has recurrent painless haematuria, poor renal function and a sensorineural deafness as demonstrated by the Rinne and Weber test. She also has a family history of sensorineural deafness. Since she has not seen her father for many years she may discover that he too has renal failure and hearing problems. It would be important to investigate her sister's renal function.

Alport syndrome is a genetic disorder leading to mutations on collagen type 4. This type of collagen is found in the basement membrane of the kidney, the eye, and the cochlear leading the renal, hearing and eye problems. It is commonly X-linked but may be seen in a less severe, lyonization pattern in affected females. It can also present in a dominant or recessive fashion. Diagnosis is made on tissue biopsy and genetic testing.

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3505543/

Question:

A 56-year-old man presents to his GP with a 6-year history of hypertension that has been difficult to control. Several medications have been tried but none have been successful in controlling his blood pressure. He also describes a generalised muscle weakness and nocturia for many years. He has no significant past medical history.

On examination, he appears well. His blood pressure is measured as 162/86 mmHg. Blood tests are taken and the results are as follows:

Na+ 138 mmol/L (135 - 145)

K+ 3.2 mmol/L (3.5 - 5.0)

Urea 5.6 mmol/L (2.0 - 7.0)

Creatinine 78 µmol/L (55 - 120)

Aldosterone:renin ratio 42 ng/dl per ng/(ml·h) (2-17)

Given the above, which of the following is the most likely cause?

A.Adrenal adenoma

B.Adrenocortical carcinoma

C.Bilateral idiopathic adrenal hyperplasia

D.Ectopic aldosterone-producing adenoma

E.Unilateral adrenal hyperplasia

Answer:Bilateral idiopathic adrenal hyperplasia

Explanation:

Bilateral idiopathic adrenal hyperplasia is the most common cause of primary hyperaldosteronism

Important for meLess important

The history and low potassium here point strongly towards primary hyperaldosteronism, which is the most common treatable/curable cause of hypertension. The most common cause of this is bilateral idiopathic adrenal hyperplasia - approximately 66% of cases. Although the classic textbook presentation includes hypokalaemia, in reality, most patients are normokalaemic.

An adrenal adenoma is incorrect - this was previously thought to be the most common cause of primary hyperaldosteronism - also known as Conn's syndrome. Recent studies, however, have demonstrated that bilateral idiopathic adrenal hyperplasia is more common, with adrenal adenomas accounting for just 33% of cases.

Adrenocortical carcinoma is an incredibly rare cause of primary hyperaldosteronism - accounting for <1% of all cases of primary hyperaldosteronism.

Ectopic aldosterone-producing adenomas are also incredibly rare - <0.1% of all cases.

Unilateral adrenal hyperplasia is also far less common than bilateral idiopathic adrenal hyperplasia - not as rare as the previous two, but still only accounting for approximately 2% of all cases.

Question:

A 40-year-old man presents to the Emergency Department with pain in his left foot. He thinks this may have been triggered by dropping a heavy box on it at work a few days ago. He is known to have type 2 diabetes mellitus which is managed with metformin. On examination there is erythema, tenderness and swelling in the distal, medial aspect of the left foot.

Bloods show the following:

Hb 145 g/l

Platelets 311 \* 109/l

WBC 6.3 \* 109/l

CRP 56 mg/l

An x-ray is requested:

© Image used on license from Radiopaedia

What is the most appropriate management?

A.Naproxen

B.Allopurinol

C.Below-the-knee plaster cast

D.Intravenous antibiotics

E.Supportive stocking e.g. TubiGrip

Answer:Naproxen

Explanation:

The x-ray demonstrates juxta-articular erosive changes around the 1st MTP joint with overhanging edges and associated with a moderate soft tissue swelling. The joint space is maintained. These findings are consistent with gout.

Allopurinol should not be used in the acute phase of gout. NSAIDs such as naproxen are generally used first-line, if there are no contraindications.

Question:

A 35-year-old female has presented with breathlessness, abdominal pain and fever. She had a renal transplant 5 months ago. She is on tacrolimus, mycophenolate mofetil and prednisolone. Her baseline creatinine is 95µmol/L.

On examination, she has icteric, with bibasal crepitations. Her temperature is 38.3ºC, blood pressure is 110/70 mmHg, heart rate is 95 beats/min and oxygen saturations are 94% on 4 litres. She had palpable lymphadenopathy and hepatomegaly.

Bloods showed:

Hb 115 g/L Female: (115 - 160)

WBC 3.6 \* 109/L (4.0 - 11.0)

Urea 9.5 mmol/L (2.0 - 7.0)

Creatinine 140 µmol/L (55 - 120)

Bilirubin 80 µmol/L (3 - 17)

ALP 170 u/L (30 - 100)

ALT 250 u/L (3 - 40)

Albumin 27 g/L (35 - 50)

CRP 50 mg/L (< 5)

Chest x-ray showed bilateral consolidation.

What is the most likely cause for this presentation?

A.Cytomegalovirus (CMV)

B.BK virus

C.Epstein bar virus (EBV)

D.Acute hepatitis B

E.Human immunodeficiency virus (HIV)

Answer:Cytomegalovirus (CMV)

Explanation:

Renal transplant + infection ?CMV

Important for meLess important

This is a case of systemic cytomegalovirus viraemia. This woman is immunosuppressed following her recent transplantation (<6 months) and now she has a fever, bilateral pneumonia, deranged liver function tests and lymphadenopathy.

Diagnosis would be via CMV PCR titres. If significantly raised, then treatment with IV ganciclovir should be started. In the acute setting, her immunosuppressive regimen needs to be discussed with her transplant team.

Looking at the other options:

Polyomavirus hominis 1 (BK) virus is a virus that can cause infection in early life, resulting in universal seropositivity. From here, it can persist in the urinary tract and can therefore be transplanted into a recipient from a donor. It is now known to be a cause of graft rejection and usually presents as an asymptomatic rise in serum creatinine. It does not present as a fulminant disease as above.

EBV is important in transplant patients as it is linked to post-transplant lymphoproliferative disease (PTLD). This typically manifests in the first year post-transplant.

Hepatitis B would not typically cause bilateral pneumonia such as this.

HIV is a possibility as this could represent a seroconversion event. But the constellation of symptoms and risk factors support a CMV infection rather than HIV. That said, in this case, it would be mandatory to check her HIV status.

Question:

A 50-year-old man presents with red-eye associated with slight watering and mild photophobia. He reports no pain or tenderness and vision is not affected

What is the most likely diagnosis?

A.Scleritis

B.Keratitis

C.Episcleritis

D.Anterior Uveitis

E.Acute angle glaucoma

Answer:Episcleritis

Explanation:

Episcleritis is a cause of red eye which is classically not painful

Important for meLess important

The correct answer here is episcleritis. All the other causes of a red eye listed present with pain and either blurring of vision or decreased visual acuity. Episcleritis is classically not painful despite diffuse inflammation although mild tenderness may sometimes be reported. It can be treated with non-steroidal anti-inflammatories or steroids in resistant cases.

Question:

A 23-year-old female patient presents to her general practitioner asking for advice about getting pregnant. She has a past medical history of epilepsy for which she takes lamotrigine. She last had a seizure 2 years ago.

She wants to know if there are any supplements that she should be taking and she is concerned as she has heard that epilepsy medications should not be taken during pregnancy.

What are the important counselling points for this patient regarding her concerns?

A.Folic acid 400mcg, swap lamotrigine to sodium valproate during pregnancy

B.Folic acid 5mg, continue lamotrigine

C.Folic acid 5mg, swap lamotrigine to sodium valproate

D.Folic acid 400mcg, continue lamotrigine

E.Folic acid 400mcg, stop lamotrigine during pregnancy due to good seizure control

Answer:Folic acid 5mg, continue lamotrigine

Explanation:

Women on antiepileptics, who try to conceive, should receive folic acid 5mg instead of 400mcg OD

Important for meLess important

Folic acid is advised in pregnancy from conception to the 12th week of pregnancy to prevent against neural tube defects.

In patients with low-risk of neural tube defects (NTDs), folic acid 400mcg once daily is advised.

In patients with a higher risk of NTD, folic acid 5mg once daily is advised. This includes epileptic patients (taking anti-epileptic medication, coeliac patients, diabetic patients, patients with a family history / partner history of NTD, or obese patients.

A higher dose of folic acid in women with epilepsy is recommended as women taking anti-epileptic drugs are at a greater risk for low serum folate levels compared to the general population. It is important to note that treatment with cytochrome P-450 enzyme inducing anti-epileptic medications (such as carbamazepine and phenytoin) are known to interfere with folate metabolism.

The patient should not swap to sodium valproate as this is a known teratogen.

The patient should not stop her medication as pregnancy can cause increased risk of seizure.

Question:

A 15-year-old girl who recently returned from a trip to Spain presents to her GP complaining of a sore throat and headache. On examination, she is noted to have erythematous swollen tonsils and cervical lymphadenopathy. Abdominal examination reveals swollen axillary lymph nodes and a palpable mass in the left hypochondriac region. Which of the following is the most likely diagnosis?

A.Tonsillitis

B.Cytomegalovirus

C.Viral throat infection

D.Infectious mononucleosis

E.Dengue fever

Answer:Infectious mononucleosis

Explanation:

There are a few conditions which can cause generalised lymphadenopathy which is mentioned in the question - CMV and Infectious mononucleosis (IM) are two of them. However, given the history and presence of large swollen tonsils together with a palpable mass in the left hypochondriac regions which suggests splenomegaly, it is highly suggestive of IM. Tonsillitis, viral throat infection, and dengue fever do not present with generalised lymphadenopathy nor splenomegaly.

Question:

A 41-year-old man presents to the emergency department complaining of a right-sided headache localised at the eye and neck pain. He says the pain came on fairly suddenly over an hour. The patient has a medical history of hypertension and a 20-year pack history of smoking. He is in obvious pain with beads of sweat on his forehead.

Observations show a heart rate of 102 bpm, blood pressure of 158/89 mmHg and Glasgow coma scale of 15/15. On examination, the right pupil is small with drooping of the eyelid. The sclera is white with no eyelid swelling. The left eye is normal.

What is the most likely cause of these symptoms?

A.Carotid artery dissection

B.Cluster headache

C.Encephalitis

D.Subarachnoid haemorrhage

E.Syringomyelia

Answer:Carotid artery dissection

Explanation:

Localised headache, neck pain, and neurological signs (e.g. Horner’s) are indicative of carotid artery dissection

Important for meLess important

Carotid artery dissection is correct. This is an important diagnosis not to miss when dealing with a patient that presents with Horner’s syndrome and neck pain. This man has presented with symptoms consistent with a carotid artery dissection, supported by the localised headache, neck pain and Horner's syndrome. The right eye is demonstrating loss of sympathetic innervation, seen by the small pupil (miosis) and drooping eyelid (ptosis). The presence of sweat (beads of sweat noted on his forehead), means the lesion causing Horner's syndrome is post-ganglionic. The pathophysiology allows you to deduce the site of origin as the sympathetic facial sweat gland innervation separates from the rest of the sympathetic innervation at the carotid artery bifurcation to run along the external carotid artery, as opposed to the sympathetic innervation for the eye and eyelid that runs along the internal carotid artery. Therefore, a carotid artery dissection causes miosis and ptosis with no anhidrosis (as sweat innervation is separate and unaffected on the external carotid artery). Out of the options given, a carotid artery dissection and cluster headache are the only post-ganglionic lesion. Given the neck pain, white sclera and lack of eyelid swelling offered in this question, a cluster headache is less likely than a carotid artery dissection. Typically, people with cluster headaches also have nasal congestion, which is not present here. The risk factors of smoking and hypertension have most likely contributed to this diagnosis. The elevated observations (tachycardia and hypertension) relate to the pain this man is experiencing, along with poorly controlled background hypertension.

Cluster headache is incorrect. This typically presents with an intense, sharp pain that is localised behind the eye and sometimes spreads to the temporal region. In this case, the pain in this man is localised around his eye and neck which should raise suspicion of a different diagnosis. Furthermore, a cluster headache causes a red and watery eye which is not described here as the man’s sclera is white. Whilst cluster headache can cause a unilateral Horner’s syndrome, the lack of symptoms such as a runny nose, eyelid swelling, red eye and temporal pain do not support this diagnosis.

Encephalitis is incorrect. Whilst encephalitis can cause Horner's syndrome, you would expect anhidrosis as this is a central lesion which will interrupt all the sympathetic nerve fibres. Furthermore, encephalitis usually presents with a fever and confusion. This man has a presenting complaint of a headache with no confusion, making encephalitis very unlikely.

Subarachnoid haemorrhage (SAH) is incorrect. This rarely results in Horner’s syndrome. Should there be an associated Horner's syndrome, you would expect to have anhidrosis as this is a central lesion, meaning none of the sympathetic fibres has been spared. This man has sweat on his forehead meaning the lesion is far more distal along the nerve pathway, after the bifurcation of the common carotid artery. Furthermore, the presentation of a SAH is usually a thunderclap headache localised at the back of the head. Often it causes loss of consciousness and upon waking confusion. This man is not confused and his pain came on over an hour localised at the right eye.

Syringomyelia is incorrect. This condition involves fluid-filled cysts (called a syrinx) that form within the spinal cord. The syrinx can get bigger, damaging and compressing the spinal cord and resulting in nerve fibre injuries. It is usually associated with a Chiari malformation. It commonly presents with progressive weakness in the arms and legs, along with headaches and loss of sensitivity to pain and temperature. Occasionally it can result in Horner's syndrome, however, this is a central lesion due to disruption of the sympathetic nerves within the spinal cord. Therefore, you would see a loss of sweating. Along with the lack of weakness and sensation changes, this option is unlikely.

Question:

A 28-year-old pregnant woman with pre-eclampsia suffered an eclamptic seizure at 11 am yesterday. She was started on magnesium, the baby was delivered an hour later at midday, but she had another eclamptic seizure at 2 pm. She has been well since then, as is the baby. When should the magnesium infusion be stopped?

A.12 hours after first seizure

B.24 hours after first seizure

C.24 hours after delivery

D.24 hours after last seizure

E.Until blood pressure returns to less than 140/90 mmHg

Answer:24 hours after last seizure

Explanation:

Magnesium treatment should continue for 24 hours after delivery or after last seizure

Important for meLess important

Magnesium treat should be started in woman with high risk severe pre-eclampsia, or those with eclampsia. It should be continued for 24 hours after delivery or after last seizure, which ever is later, hence why 24 hours after last seizure is correct answer.

Question:

A 65-year-old man presents with a progressive history of headaches, fatigue and generalised bone pain. Base-level blood tests are performed and identify normocytic anaemia, raised calcium and renal impairment therefore a diagnosis of multiple myeloma is suspected.

The patient is admitted for corrects of his electrolyte imbalance and a plan for bone marrow biopsy is considered.

What imaging should be conducted as the first line for this patient’s suspected diagnosis?

A.Skeletal survey

B.Skull x-ray

C.Whole-body CT scan

D.Whole-body MRI scan

E.Whole-body PET scan

Answer:Whole-body MRI scan

Explanation:

Whole body MRI 1st line imaging in suspected multiple myeloma

Important for meLess important

The patient in the vignette has presented with features of a neoplasm of the bone marrow plasma cells, multiple myeloma (MM). Whole-body MRI is now the recommended imaging modality for suspected MM, identifying both focal and diffusion bone marrow infiltration. MRI is advised as the first line, as it has a high sensitivity for detecting osseous and extraosseous lesions without ionizing radiation.

Historically a skeletal survey, made up of a series of x-rays including the skull, axial skeleton and proximal long bones, was the imaging of choice to aid with the diagnosis of MM. These x-rays would look for lytic bone lesions characteristic of MM. However skeletal survey is no longer the recommended imaging modality and updated guidelines now recommend the use of MRI imaging given its increased sensitivity and the fact that it does not use ionizing radiation.

Skull x-rays were one part of the traditional skeletal survey used to diagnose MM, with punched-out lesions of the skull being characteristic of the condition (known as rain-drop skulls). The use of x-rays has now been replaced with MRI where possible.

A complementary CT of a specific region may be indicated if a conspicuous lesion is identified to assess for osteolytic lesions and evaluate stability; however, MRI is now recommended as first-line, and a whole-body CT is not advisable due to a large amount of radiation required.

Whole-body PET may be used for restaging MM and detecting possible relapse following initial treatment, as it can be used to differentiate between active and inactive MM lesions. However, due to its accessibility, PET scans are not currently the first-line recommended imaging modality for initial diagnoses of MM.

Question:

A 32-year-old female presents to the Emergency Department with abdominal bloating and severe vomiting and diarrhoea. She has been undergoing ovulation induction. On US examination, she has evidence of ascites. Bloods are taken which show:

Hb 130 g/L Male: (135-180)

Female: (115 - 160)

Platelets 300 \* 109/L (150 - 400)

WBC 10 \* 109/L (4.0 - 11.0)

Na+ 133 mmol/L (135 - 145)

K+ 5.0 mmol/L (3.5 - 5.0)

Urea 10 mmol/L (2.0 - 7.0)

Creatinine 110 µmol/L (55 - 120)

CRP 8 mg/L (< 5)

Haematocrit 0.5 Male: (0.4-0.54)

Female: (0.36 - 0.48)

What medication is most likely to have caused this side effect?

A.Anastrozole

B.Gonadotrophin therapy

C.Letrozole

D.Raloxifene

E.Tamoxifen

Answer:Gonadotrophin therapy

Explanation:

Ovarian hyperstimulation syndrome is a potential side-effect of ovulation induction

Important for meLess important

This is a typical presentation of ovarian hyperstimulation syndrome with ascites, vomiting and diarrhoea and high haematocrit. Ovarian hyper stimulation syndrome is a potential side effect of ovulation induction.

Ovulation induction may be performed with a number of different medications. Gonadotrophin therapy is associated with an increased risk of ovarian hyper stimulation syndrome compared to clomiphene citrate or raloxifene, letrozole or anastrozole. Therefore, gonadotrophin therapy is the most likely medication she was given.

Tamoxifen is not a medication used to induce ovulation.

Question:

A 26-year-old is scheduled to undergo a proctocolectomy for ulcerative colitis. They currently take long-term daily prednisolone 10mg/day to help manage their ulcerative colitis. They take no other regular medications.

What, if any, alterations need to be made to their medications before surgery?

A.No change needed

B.Stop prednisolone

C.Supplement with dexamethasone

D.Supplement with hydrocortisone

E.Supplement with prednisolone

Answer:Supplement with hydrocortisone

Explanation:

Hydrocortisone supplementation is required prior to surgery for patients taking prednisolone

Important for meLess important

Patients taking the equivalent to 10mg or more prednisolone daily require additional steroid supplementation if they undergo surgery to prevent an Addisonian crisis.

During surgery, the body would normally produce more cortisol. However, in those taking long-term steroids, the adrenals are suppressed and may be unable to produce enough cortisol to meet the body's raised requirements due to the stress of surgery, causing an Addisonian crisis. To prevent this, steroid supplementation; preferably hydrocortisone, is given peri-operatively.

If no changes are made, the patient is more at risk of Addisonian crisis as they are unlikely to be able to produce enough steroids to meet additional physiological needs.

An even higher risk of Addisonian crisis occurs if ongoing prednisolone is stopped peri-operatively, as the body will be even more deficient in steroids.

Hydrocortisone is used preferentially in supplementation as it is shorter acting than dexamethasone, which is longer acting than prednisolone and hydrocortisone.

Hydrocortisone is used preferentially in supplementation pre-operatively as it is shorter acting than prednisolone.

Question:

A 30-year-old woman is admitted to the Emergency Department following a suspected peanut allergy. On examination she has gross facial and tongue oedema. Her oxygen saturations are 97% on room air, pulse is 96 / min and blood pressure is 90/62 mmHg. The paramedics have already gained intravenous access. What is the most appropriate way to give adrenaline in this situation?

A.Nebulised

B.Subdermally

C.Intramuscularly

D.Intravenously

E.Subcutaenously

Answer:Intramuscularly

Explanation:

IM adrenaline should be injected in the anterolateral aspect of the

middle third of the thigh

Important for meLess important

The Resuscitation Council guidelines only recommend giving adrenaline intramuscularly, regardless of whether the patient has intravenous access or not.

Question:

A 25-year-old accountant attends her first cervical smear appointment. She has not yet had any pregnancies, she has a history of pelvic inflammatory disease treated 4 years ago, and she currently has an intrauterine system in situ. There is no other significant past medical or social history. As it is her first smear, she asks you what it is we are testing for.

How would you counsel her?

A.The sample is tested for all types of HPV including types 6, 11, 16, and 18

B.The sample is tested for high-risk HPV first

C.The sample will always have HPV testing AND cytology done

D.The sample will be looked at under a microscope first (cytology)

E.The sample will be tested for cervical cancer cells

Answer:The sample is tested for high-risk HPV first

Explanation:

Cervical smear samples are tested for hrHPV as the first step

Important for meLess important

The sample is tested for high-risk HPV first is correct. All cervical smear samples are now tested for high-risk HPV first, and cytology is only carried out if the patient is found to be hrHPV positive. This has been proven to be more sensitive than doing cytology first on all samples without screening for hrHPV. If this woman is hrHPV negative she will return to routine recall and have a repeat smear in 3 years. However, if her sample was hrHPV positive then it would be looked at under a microscope for cytology. If any abnormal cells were found she would be referred to colposcopy, but if no abnormal cells were found she would be asked to have a repeat smear in 12 months to see if the hrHPV was persisting.

The sample is tested for all types of HPV including types 6, 11, 16, and 18 is incorrect. Only high-risk HPV types are screened for as part of the national cervical screening programme. Types 16 and 18 cause more than 4 out of 5 cervical cancers in the UK. Types 31, 33, 45, 52 and 58 cause an additional 15% of cervical cancers. Types 6 and 11 are low-risk types that commonly cause benign genital warts. While they are not included in screening, both HPV types 6 and 11 are covered by the Gardasil vaccine.

The sample will always have HPV testing AND cytology done is incorrect. The sample will only have cytology done if it is hrHPV positive. Samples negative for hrHPV do not have any further testing carried out.

The sample will be looked at under a microscope first (cytology) is incorrect. This was previously how the pathway worked, but evidence showed that testing for hrHPV first was more sensitive. Cytology is only carried out if the patient is found to be HPV positive, in which case the woman in the scenario would receive a single letter including both her HPV status and whether abnormal cells were found.

The sample will be tested for cervical cancer cells first is incorrect. The screening programme does not diagnose cancer. Looking for cervical cancer cells is done on biopsy during colposcopy for definitive histological diagnosis.

Question:

A 67-year-old woman presents to her general practitioner with a lump in her groin area. She has noticed it last week and is not causing her any pain. On examination, a soft, non-tender mass is palpable on her left inguinal area, medial and superior to the pubic tubercle. It disappears when she lies down. When you try to reduce it and press on the mid-point of the inguinal ligament, it still protrudes if the patient stands up. She denies any past medical history and she is not taking any medication.

Which one of the following is the most likely diagnosis?

A.Direct inguinal hernia

B.Femoral hernia

C.Indirect inguinal hernia

D.Obturator hernia

E.Richter hernia

Answer:Direct inguinal hernia

Explanation:

Inguinal hernias and superior and medial to the pubic tubercle

Important for meLess important

The correct answer is a direct inguinal hernia. Inguinal hernias comprise three-quarters of abdominal wall hernias and are classically located superior and medial to the pubic tubercle. Inguinal hernias can be direct or indirect.

Direct inguinal hernias like this one, enter the inguinal canal directly through the posterior wall of the canal, named Hesselbach’s triangle. Indirect inguinal hernias on the other side, enter the inguinal canal via the deep inguinal ring. Hence to distinguish between the two you can try to reduce the hernia and then press on the deep inguinal ring situated on the mid-point of the inguinal ligament. If the hernia stops protruding after this it means that its exit point is the deep inguinal ring, making it an indirect hernia. On the other side, if the hernia still protrudes, like in this case it means that it is a direct hernia. It needs to be kept in mind, that the confirmation of the type of hernia can only be done once the surgical procedure has started, hence these characteristics are not fully diagnostic.

Femoral hernias are found below and lateral to the pubic tubercle and more common in women, particularly multiparous ones. They usually strangulate so these patients usually undergo a surgical repair. The patient's hernia is superior and medial to the pubic tubercle.

An obturator hernia is a hernia that passes through the obturator foramen. It is more common in females and typically presents with bowel obstruction. The patient does not have any symptoms of obstruction.

Richter hernia is a rare hernia, where only a portion of the circumference of the bowel herniates. Hence, the hernia can present with strangulation without symptoms of obstruction. The patient does not have any symptoms of strangulation.

Question:

You are called to see an elderly man on the ward who has 'stopped breathing'. On arrival you can find no signs of life and start chest compressions. A nurse attaches the defibrillator which shows the patient is in asystole. Presuming that the patient stays in asystole, which one of the following describes the most appropriate management?

(Presume adrenaline is given immediately and every 3-5 minutes)

CPR = Cardiopulmonary resuscitation

A.CPR + check rhythm every 3 minutes + give IV atropine stat and every 3 minutes

B.CPR + check rhythm every 2 minutes + give IV atropine stat and every 4 minutes

C.CPR + check rhythm every 2 minutes + give IV atropine stat and every 2 minutes

D.CPR + check rhythm every 2 minutes

E.CPR + check rhythm every 2 minutes + give IV atropine stat

Answer:CPR + check rhythm every 2 minutes

Explanation:

ALS - atropine is no longer recommended in asystole or pulseless electrical activity

Important for meLess important

Question:

A 17-year-old girl with a long history of migraines presents with a 24-hour history of headache. She does, however, mention that this headache is a little different to her usual migraine attacks since the light hurts her eyes and normal sounds seem to make her uncomfortable. Her mother states that her daughter has vomited 3 times in the past few hours before coming to the emergency department. Her only history of note is that she had childhood asthma and a recent upper respiratory tract infection which started about 4 days ago. On examination she has a temperature of 39 degrees, there is also no evidence of any rashes. There is no evidence of papilloedema on fundoscopy.

What is the most likely diagnosis?

A.Migraine

B.Meningitis

C.Acute glaucoma

D.Sinusitis

E.Cluster headache

Answer:Meningitis

Explanation:

Meningitis is the most likely diagnosis given the atypical nature of her symptoms and fever.

The new occurrence of photophobia and phonophobia should alert you that this might not be the patient's usual migraine attack. The presence of a fever and phonophobia does not fit with the diagnosis of acute glaucoma. Although the patient may have raised intracranial pressure associated with meningitis (even if there is no papilloedema since this is a late sign), one must think of the underlying cause for the raised intracranial pressure as opposed to having it as a standalone diagnosis.

Question:

A 24-year-old man is receiving a transfusion of fresh frozen plasma (FFP). After 15 minutes into the transfusion, he develops shortness of breath. Observations are as follows: heart rate 120bpm, blood pressure 80/35 mmHg, and temperature 37.2ºC. On examination, you note bilateral expiratory wheeze. He has no past medical history.

What is the most likely cause?

A.Acute haemolytic transfusion reaction

B.Anaphylactic reaction

C.Bacterial contamination

D.Transfusion-associated circulatory overload (TACO)

E.Transfusion-related acute lung injury (TRALI)

Answer:Anaphylactic reaction

Explanation:

Anaphylactic reaction to blood transfusion should be immediately treated with IM adrenaline and the transfusion terminated.

Important for meLess important

Anaphylactic reaction is the correct answer. The patient has features of anaphylactic shock (acute wheeze and hypotension in the absence of fever). This reaction is more common with plasma-rich blood products such as FFP, cryoprecipitate and platelets.

Acute haemolytic transfusion reaction is incorrect. This reaction occurs due to the destruction of donor red cells from the recipient's naturally occurring antibodies (e.g. anti-A and anti-B). This type of reaction does not occur with FFP since it does not contain red cells.

Bacterial contamination is incorrect. Contamination of blood products with bacteria can cause sudden onset septic shock. The presence of the wheeze and absence of fever in the vignette makes an anaphylactic reaction more likely. Bacterial contamination is more likely to occur with platelet transfusions since these blood components are stored at room temperature.

Transfusion-associated circulatory overload (TACO) is incorrect. TACO is defined as acute or worsening respiratory compromise and/or acute or worsening pulmonary oedema during or up to 12 hours of transfusion. It is more likely to be associated with hypertension than hypotension (in contrast to TRALI). Risk factors include old age, heart failure, and renal dysfunction. In this vignette, the sudden onset of shortness of breath and the presence of shock make TACO unlikely.

Transfusion-related acute lung injury (TRALI) is incorrect. TRALI is a serious and potentially fatal complication of blood product transfusion in which a patient develops rapid onset lung injury and non-cardiogenic pulmonary oedema due to activation of immune cells in the lung. It is often associated with plasma-rich blood components such as FFP and cryoprecipitate. Although TRALI can also present with hypotension, as seen in this vignette, the acute onset within 15 minutes makes an anaphylactoid reaction more likely. Since TRALI results in non-cardiogenic pulmonary oedema, the clinical findings would typically be bibasal coarse crepitations in contrast to the expiratory wheeze that is seen in this case.

Question:

A 55-year-old woman has presented to her GP complaining of always being thirsty and having to pass urine frequently throughout the day. The urine that she passes is always dilute. She also complains of having recurrent episodes of abdominal pain and constipation as well as recently feeling weak and tired all the time. This all seems to have affected her mood and so she seems low in mood throughout the appointment. The GP decides to perform an ECG and requests blood tests which show the following results.

Calcium 2.8 mmol/L (2.1-2.6)

K+ 4.3 mmol/L (3.5 - 5.0)

What is the most likely abnormality on the ECG?

A.J-wave

B.Prolonged QT interval

C.Short QT interval

D.Tall tented T-waves

E.U-wave

Answer:Short QT interval

Explanation:

The main ECG abnormality seen with hypercalcaemia is shortening of the QT interval

Important for meLess important

This patient has characteristic features of hypercalcaemia. The combination of polyuria and polydipsia, constipation and abdominal pain, depression, weakness and fatigue all indicate hypercalcaemia as the likely diagnosis. Shortening of the QT interval is the main ECG abnormality seen with hypercalcaemia.

Presence of a J-wave is typically seen in hypothermia and not in hypercalcaemia.

Prolonged QT interval is a feature of hypocalcaemia and not hypercalcaemia.

Tall tented T waves are a feature characteristic of hyperkalaemia and not hypercalcaemia.

U-waves are present in hypokalaemia and not in hypercalcaemia.

Question:

A 67-year-old woman is noted to have corneal opacities during a routine opticians appointment. These are not affecting her vision. Which one of the following drugs is most likely to be the cause?

A.Amiodarone

B.Sodium valproate

C.Methotrexate

D.Furosemide

E.Digoxin

Answer:Amiodarone

Explanation:

Amiodarone therapy can result in both corneal opacities and optic neuritis

Question:

A 12-year-old boy presents for review. He was diagnosed with asthma three years ago by his general practitioner. He is currently on a salbutamol inhaler which he is using 2 puffs 3 times daily, a paediatric low-dose beclomethasone inhaler and oral montelukast. He still has a night time cough and has to use his blue inhaler most days. Unfortunately, there appears to have been little benefit following the addition of montelukast. His chest is clear on examination today with no wheeze and a near-normal peak flow.

What is the next step in his management?

A.Stop montelukast and add salmeterol

B.Increase dose of beclomethasone

C.Add regular oral prednisolone until symptoms are controlled

D.Add tiotropium

E.Add theophylline

Answer:Stop montelukast and add salmeterol

Explanation:

Child aged 5-16 years with asthma not controlled by a SABA + paediatric low-dose ICS + leukotriene receptor antagonist asthma management in children 5-16 - add a LABA and stop the leukotriene receptor antagonist

Important for meLess important

Question:

You receive a call from the Biochemistry Lab. A blood sample you have taken from a patient is reported to have a potassium level of 6.4mmol/L. What is your first step?

A.Repeat the blood sample

B.Perform an ECG

C.Commence a calcium gluconate infusion

D.Commence an insulin/dextrose infusion

E.Commence a salbutamol nebuliser

Answer:Perform an ECG

Explanation:

Although there is no universal definition of hyperkalaemia, a serum K+ of 5.5 mmol/L is widely accepted. It can be further classified as mild (5.5-5.9 mmol/L), moderate (6.0-6.4 mmol/L) or severe ( 6.5 mmol/L). The Renal Association1 recommend all patients with a serum K+ of 6.0 or more to undergo an urgent ECG.

ECG changes associated with hyperkalaemia include diminished P wave amplitude, increased T wave amplitude, PR prolongation and widened QRS complex.

Any such changes in association with hyperkalaemia necessitate immediate stabilisation of the myocardium with calcium gluconate/calcium chloride infusion. The next step will be to shift K+ into cells. This is most reliably done with an insulin infusion, together with dextrose to avoid hypoglycaemia. Additional therapy with salbutamol can further shift K+ into cells.

Question:

A 64-year-old Bangladeshi man presents to the GP with blood-stained sputum and breathlessness. On further questioning, he notes fatigue, weight loss and some sweating in the night. The GP takes sputum samples and sends the man for a chest X-ray.

Given this initial management, what other investigation must be requested in this patient?

A.Urinalysis

B.Pleural aspiration

C.High-resolution computed tomography (HRCT) chest

D.Lumbar puncture

E.HIV test

Answer:HIV test

Explanation:

A HIV test should be offered to all patients with TB

Important for meLess important

This question is asking about the investigation of a patient with suspected TB. Given his presentation with bloody sputum, breathlessness, signs of malaise and fever, along with a high-risk background, TB is the likely diagnosis. Therefore this patient has been sent for a chest X-ray and had sputum samples performed. All patients with suspected TB require a HIV test, latent TB is often pushed into active disease by immunosuppression and the most common cause of this is HIV.

Urinalysis is indicated in many conditions presenting with urinary symptoms or those presenting with symptoms of an infection whose source has not been localised. In this case neither of these are present and thus the test is not required.

Pleural aspiration may be performed if there were signs of a pleural effusion on the chest X-ray or on clinical examination, however, neither of these are mentioned in the question and so this is not necessary.

A high-resolution computed tomography (HRCT) chest is not used in the investigation of TB. It is more commonly used in patients with suspected interstitial lung disease.

A lumbar puncture may be ordered in patients with suspected miliary disease or if there are associated neurological symptoms/meningism. However, neither of these are indicated.

Question:

A 48-year-old smoker, who was diagnosed with COPD 10 years ago, is experiencing shortness of breath and a productive cough with purulent sputum. These episodes have become more frequent within the last few years.

What is the most common causative agent of these exacerbations?

A.Moraxella catarrhalis

B.Streptococcus pneumonia

C.Chlamydia pneumonia

D.Pseudomonas aeruginosa

E.Haemophilus influenzae

Answer:Haemophilus influenzae

Explanation:

The most common organism causing infective exacerbations of COPD is Haemophilus influenzae

Important for meLess important

The frequency of exacerbations and the mortality rate correlate with the severity of disease. The majority of these cases are due to Haemophilus influenzae, Streptococcus pneumonia and Moraxella catarrhalis. The other answers are rarer causes of acute exacerbations.

Question:

You are working in primary care and speak to a 45-year-old woman with a 5-day history of frontal and maxillary pain and a runny nose. She spoke to one of the other doctors in the surgery a few days ago who advised a steroid nasal spray and nasal douching for suspected acute sinusitis. Unfortunately, these haven't alleviated her symptoms and she would like something else. She denies any fever or purulent nasal discharge and has no significant medical history otherwise.

What is the most appropriate management plan?

A.Arrange for a swab to be taken before starting antibiotics

B.Prescribe a course of oral prednisolone

C.Offer safety-netting advice for her to call back if her symptoms haven't improved after the next 5 days

D.Prescribe a 7 day course of amoxicillin

E.Prescribe a delayed antibiotic prescription to start if her symptoms haven't improved in 2 days

Answer:Offer safety-netting advice for her to call back if her symptoms haven't improved after the next 5 days

Explanation:

Antibiotics are not indicated in uncomplicated acute sinusitis

Important for meLess important

This is a fairly typical case of acute sinusitis with no complicating features. The National Institute of Clinical Excellence (NICE) guidelines advise that acute sinusitis can be managed with simple measures such as regular paracetamol and ibuprofen. If symptoms have been ongoing for less than 10 days, patients may be offered a nasal steroid or advice on nasal douching (though evidence for these is lacking), but that an antibiotic prescription should not be offered as the vast majority are viral. If symptoms last over 10 days, then an antibiotic prescription (or delayed prescription), can be considered. It is, therefore, appropriate to provide safety netting advice to her to call back if her symptoms are ongoing in 5 days.

Swabs are not useful in acute sinusitis as the vast majority are viral in nature. If there were any signs of a bacterial infection (purulent discharge, high fever), antibiotics should be started without waiting for a swab result.

Though nasal steroids are commonly used in sinusitis, oral prednisolone does not feature in the NICE guidance.

Antibiotics should not be prescribed if symptoms have been ongoing for less than 10 days. A delayed prescription can be considered after 10 days, but antibiotics offer very limited effect in acute sinusitis.

Question:

A 68-year-old male is admitted to the surgical ward for assessment of severe epigastric pain. His abdomen is soft and non-tender. However, the nurse asks you to look at the ECG. It looks abnormal. Which of the following features is an indication for urgent coronary thrombolysis or percutaneous intervention?

A.Right bundle branch block

B.ST elevation of 1mm in leads V1 to V6

C.Ventricular tachycardia

D.Q waves in leads V1 to V6

E.ST elevation of 1.5 mm in leads II, III and aVF

Answer:ST elevation of 1.5 mm in leads II, III and aVF

Explanation:

ECG changes for thrombolysis or percutaneous intervention:

ST elevation of > 2mm (2 small squares) in 2 or more consecutive anterior leads (V1-V6) OR

ST elevation of greater than 1mm (1 small square) in greater than 2 consecutive inferior leads (II, III, avF, avL) OR

New Left bundle branch block

Important for meLess important

ST elevation of 1.5mm in leads II, III and aVF reflects significant cardiac ischaemia due to the right coronary artery occlusion. The medical registrar should be contacted to urgently assess the patient. Note right coronary artery occlusions puts the patient at risk of cardiac arrhythmias (due to blood supply to the sino atrial node).

Question:

You are prescribing hormone replacement therapy (HRT) for a 48-year-old woman who is fit and well but is experiencing severe menopausal symptoms. She wants to know about the risks and benefits of the different types of HRT.

Which of the following answers is correct regarding the risk of cancer with different HRT preparations?

A.All HRT decreases the risk of ovarian cancer

B.HRT with oestrogen alone is associated with an increased risk of coronary heart disease

C.HRT with progestogen alone is associated with an increased risk of coronary heart disease

D.Combined HRT decreases the risk of breast cancer

E.Combined HRT increases the risk of breast cancer

Answer:Combined HRT increases the risk of breast cancer

Explanation:

HRT: adding a progestogen increases the risk of breast cancer

Important for meLess important

HRT can be oestrogen alone or combined with progestogen. Adding a progestogen increases the risk of breast cancer although this increase is related to treatment duration and reduces after stopping HRT and it does not affect the risk of dying from breast cancer.

HRT with oestrogen alone is associated with no, or reduced, risk of coronary heart disease and combined HRT (with oestrogen and progestogen) is associated with little or no increase in the risk of CHD.

There is no HRT that is progestogen only.

NICE do not offer specific risk analysis regarding ovarian cancer in women taking HRT but they point to a meta-analysis that suggests that there is an increase in risk for both the oestrogen-only HRT and the combined HRT preparations.

Question:

A 22-year-old man attends a neurology clinic having been referred by his GP. His initial complaint was excessive twitching and jerks in his arms and legs in the morning. This would be ‘on and off’ for a few seconds after waking. He explained this has happened on 3 or 4 occasions and has never lost consciousness. No one has witnessed any of these events. He reports no history of illicit drug use or previous head trauma.

The neurologist decides to start medical treatment.

Given the likely diagnosis in this man, what is the most appropriate treatment to commence?

A.Carbamazepine

B.Ethosuximide

C.Lamotrigine

D.Levetiracetam

E.Sodium valproate

Answer:Sodium valproate

Explanation:

Myoclonic seizures: sodium valproate is first-line for males

Important for meLess important

Sodium valproate is correct. This man has experienced myoclonic seizures, seen by the brief-like muscle jerks that occur in clusters shortly after waking. Even though consciousness is retained, they are classified as generalised seizures as the person is likely to have other seizures (such as tonic-clonic seizures) as well as myoclonic seizures. In men, the first-line treatment for myoclonic seizures (along with generalised tonic-clonic seizures) is sodium valproate making this the correct answer as high-quality evidence demonstrates its efficacy.

Carbamazepine is incorrect. This is a second-line treatment for focal seizures after lamotrigine or levetiracetam have been trialled. Focal seizures are split into focal awareness and focal impaired awareness, depending on the patient's consciousness level. Focal seizures start in a particular lobe of the brain. The lobe origin can be worked out depending on the symptoms experienced. For example, focal aware seizures that start in the temporal lobe may include deja vu, a rising feeling in the stomach, or an unusual taste or smell. The symptoms described in this scenario of muscle jerks imply this man has myoclonic seizures, not a focal aware seizure, making sodium valproate the medication that should be trialled.

Ethosuximide is incorrect. This is the first line of treatment in absence seizures, during which, the person becomes blank or unresponsive for a few seconds. Muscle jerks are not common in absence seizures making this an unlikely diagnosis.

Lamotrigine is incorrect. This is the first-line treatment for focal seizures and generalised tonic-clonic seizures in females. As this man did not lose consciousness, it is unlikely these muscle jerks are due to generalised tonic-clonic seizures. As previously explained, this is not a focal seizure, but a myoclonic seizure so lamotrigine is not suitable.

Levetiracetam is incorrect. If this patient were female, this would be the first-line treatment for myoclonic seizures. However, as the patient in this scenario is a man, sodium valproate should be started as the evidence demonstrates it is more efficacious when used in men with myoclonic seizures.

Question:

An 83-year-old woman is seen in the emergency department after being found on the floor of her home by her daughter. She appears confused and examination reveals clinical signs of pneumonia in the right lower zone.

A set of bloods reveal the following abnormality:

Thyroid stimulating hormone (TSH) 5.1 mU/L (0.5-5.5)

Free thyroxine (T4) 5.3 pmol/L (9.0 - 18)

Free T3 3.1pmol/L (4.0-7.4)

She is admitted, and started on IV antibiotics and fluids. On re-assessment, her Glasgow coma scale score (GCS) is 15/15.

She has a past medical history of hypertension, anxiety and gout.

What should be done to manage her deranged thyroid function tests?

A.Continue antibiotics and fluids as required

B.Continue antibiotics and fluids as required and start IV levothyroxine

C.Continue antibiotics and fluids as required and start oral levothyroxine

D.Continue antibiotics and fluids as required, start IV corticosteroids and IV levothyroxine

E.Continue fluids as required, start oral levothyroxine therapy and discontinue antibiotics immediately

Answer:Continue antibiotics and fluids as required

Explanation:

Sick euthyroid is common in unwell, elderly patients and often needs no treatment

Important for meLess important

Continue antibiotics and fluids as required is correct. This is because the cause of her thyroid dysfunction is sick euthyroid syndrome. This has been precipitated by community-acquired pneumonia leading to a fall. Hypothermia and dehydration may well be present because of the fall, which can also help precipitate sick euthyroid syndrome.

Sick euthyroid syndrome is common in unwell, elderly patients and thyroid tests will show low T3, low T4 and low/inappropriately normal TSH. The management is to treat the underlying cause - pneumonia- by continuing IV antibiotics and fluids.

Continue antibiotics and fluids as required and start IV levothyroxine is incorrect. There is no indication for levothyroxine as the likely cause of her thyroid dysfunction is sick euthyroid syndrome as explained above.

Continue antibiotics and fluids as required and start oral levothyroxine is incorrect. There is no indication for levothyroxine as the likely cause of her thyroid dysfunction is sick euthyroid syndrome as explained above.

Continue antibiotics and fluids as required, start IV corticosteroids and IV levothyroxine. This is the management for myxoedema coma, which would be a differential for this presentation, due to her confused state and the presence of precipitating factors e.g. pneumonia. There are several factors which make this diagnosis less likely. Firstly, the patient has no past medical history of hypothyroidism. Myxoedema coma occurs on a background of untreated or poorly treated hypothyroidism. Secondly, she has a normal TSH. Myxoedema coma would present with low T3/T4 and high TSH as in primary hypothyroidism. Finally, she returned to normal cognitive status on the ward. Myxoedema coma patients are likely to be very unwell and unlikely to stabilise without appropriate treatment of the underlying thyroid issues.

Continue fluids as required, start oral levothyroxine therapy and discontinue antibiotics immediately is incorrect. There is no indication for levothyroxine and discontinuing her antibiotics will delay recovery from her pneumonia.

Question:

A 50-year-old female presents to the emergency department with a right sided unilateral headache and blurred vision in her right eye. The pain radiates into her jaw, particularly on chewing. She has also been feeling generally tired, with muscle aches and night sweats over the last few weeks.

Which of the following conditions would you expect to see in her past medical history?

A.Rheumatoid arthritis

B.Fibromyalgia

C.Polymyalgia rheumatica

D.Polyarteritis nodosa

E.Polymyositis

Answer:Polymyalgia rheumatica

Explanation:

Temporal arteritis commonly occurs in patients with PMR

Important for meLess important

The patient has presented with classical features of temporal arteritis (also known as giant cell arteritis) which often occurs in patients with a history of polymyalgia rheumatica. Many of the alternative options have very similar sounding names - make sure you read them properly!

Question:

A 62-year-old man suffers a closed tibial shaft fracture whilst away on holiday. His x-ray demonstrates adequate alignment. He is placed in an encircling above-knee cast. He wishes to fly home to the UK post-injury. The flight duration will be 2 hours 45 minutes.

How long should he wait to fly?

A.12 hours

B.24 hours

C.48 hours

D.72 hours

E.10 days

Answer:48 hours

Explanation:

Full plaster cast should not fly (if >2 hours durations) until 48 hours after cast applied, unless bivalved

Important for meLess important

48 hours is correct. Patients immobilised in full lower limb casts which are not bivalved (i.e. split twice along the entire length) are advised to wait 48 hours after cast application before flying (when flight time exceeds two hours). This is because of the risk of swelling shortly after a plaster cast is applied which can lead to compartment syndrome and/or deep vein thrombosis.

12 hours is incorrect. This patient should wait 48 hours after cast application before flying to reduce their risk of developing compartment syndrome and deep vein thrombosis secondary to swelling post-plaster cast application.

24 hours is incorrect. If the patient’s flight duration were less than two hours, this answer would be correct. In flights greater than 2 hours in duration, there is an increased risk of compartment syndrome and/or deep vein thrombosis in the first 48 hours post plaster cast application.

72 hours is incorrect. Current recommendations suggest that this patient could fly 48 hours after cast application as their risk of compartment syndrome and/or deep vein thrombosis reduces 48 hours after plaster cast application.

10 days is incorrect. Patients who have undergone abdominal surgery should wait 10 days post-operatively to fly. This patient's risk of developing compartment syndrome and deep vein thrombosis is highest in the 48-hour period after their cast application. After 48 hours their risk is reduced; therefore they would be allowed to fly home.

Question:

A 76-year-old-man was seen by one of your colleagues one month previously complaining of right ear otalgia and discharge. He was diagnosed with otitis externa and started on antibiotic ear drops. He was next seen by an out of hours doctor one week ago who prescribed further antibiotic drops and tramadol. He has come to see you reporting that his symptoms are no better and the pain is becoming unbearable.

He has a past medical history of type-2 diabetes mellitus and hypertension. His regular medicines are metformin, gliclazide, ramipril and atorvastatin. He has no drug allergies. He has never smoked and rarely drinks alcohol.

On examination there is debris in the right ear canal but the tympanic membrane remains visible. There was no erythema of the pinna or mastoid swelling. Examination of the cranial nerves is normal.

What is the most appropriate course of action?

A.Prescribe a buprenorphine patch

B.Prescribe a course of oral flucloxacillin

C.Take a swab of the ear canal for microscopy and culture

D.Refer urgently to on-call ENT team

E.Book for ear syringing

Answer:Refer urgently to on-call ENT team

Explanation:

Non-resolving otitis externa with worsening pain should be referred urgently to ENT

Important for meLess important

Otitis externa with worsening unrelenting pain despite strong analgesia is suggestive of malignant (necrotising) otitis externa. This patient has a history of diabetes so is at particularly high risk. At more advanced stages this can cause ipsilateral facial nerve palsy. Long courses of intravenous antibiotics are needed and urgent ENT assessment is required.

Increased pain relief will certainly be needed but escalation to the ENT team is more pressing.

Oral antibiotics (usually ciprofloxacin, to cover pseudomonal species) may be used alongside drops if there is a concern of deep tissue infection, however, most patients will needs IV antibiotics. Regardless an urgent ENT review is more important.

Swabs of the ear canal may be useful in guiding antibiotic therapy but this is not the most important action.

Syringing of the ear is contraindicated.

Question:

A 70-year-old patient with prostate cancer is commenced on goserelin therapy. A week after starting treatment, he attends a local emergency department complaining of worsened lower urinary tract symptoms and new onset back pain. Which of the following treatment options may have helped avoid this deterioration?

A.Higher dose goserelin

B.Pretreatment with flutamide

C.Lower dose goserelin

D.Low dose-rate brachytherapy

E.Joint therapy with corticosteroids

Answer:Pretreatment with flutamide

Explanation:

During the first stages of treatment, goserelin may cause a transient increase in symptoms of prostatic cancer. This is known as the 'flare effect' and is caused by an initial increase in luteinizing hormone production prior to receptor down-regulation.

Flutamide, a synthetic antiandrogen, can be used preemptively to attenuate the tumour flare through its antagonistic effects at androgen receptors.

The new onset back pain in this patient is significant and demands further investigation of spinal metastasis.

Question:

A 75-year-old man comes into the orthopaedic ward for an elective hip replacement. He has been assessed for venous thromboembolism (VTE) prophylaxis. Apart from the operation and his age he does not have any additional risk factors and he does not have any risk factors for bleeding. What is the recommended VTE prophylaxis measures for this gentleman?

A.TED stockings

B.TED stockings + dalteparin sodium started at least 6 hours post-operation

C.TED stockings + dalteparin sodium started the morning of surgery

D.Dalteparin sodium started at least 6 hours post-operation

E.Dalteparin sodium stared the morning of surgery

Answer:TED stockings + dalteparin sodium started at least 6 hours post-operation

Explanation:

NICE recommends that patients who will undergo an elective hip replacement have both mechanical and pharmacological methods of venous thromboembolism (VTE) prophylaxis. TED stockings should be administered and the patient should wear them once they have been admitted. As long as there are not contraindications, such as bleeding risk, pharmacological VTE prophylaxis is administered after surgery. Dalteparin sodium, a low molecular weight heparin, is started 6 hours after surgery. Other pharmacological methods can also be used.

Mechanical prophylaxis, such as TEDs, while indicated for this patient is not enough of a prophylactic measure, especially as he does not have a risk of bleeding.

Pharmacological prophylaxis is not started prior to surgery because of bleeding risk during the operation. A time window is often used post-operatively in case of haematoma formation. Pharmacological prophylaxis is continued for up to 35 days post-operatively

Question:

Bob, 73, has chronic obstructive pulmonary disease (COPD) and type 2 diabetes mellitus. He has been experiencing diarrhoea and vomiting for the past 3 days and his family have brought him to the emergency department as they are worried. History, examination and blood tests reveal Bob to be dehydrated and to have developed an acute kidney injury with an estimated glomerular filtration rate (eGFR) of 29ml/min/1.73m². According to NICE guidelines, which one of the following medications should be stopped?

A.Long acting insulin

B.Metformin

C.Tiotropium

D.Theophylline

E.Gliclazide

Answer:Metformin

Explanation:

NICE recommend that the dose of metformin should be reviewed if the creatinine is > 130 micromol/l (or eGFR < 45 ml/min) and stopped if the creatinine is > 150 micromol/l (or eGFR < 30 ml/min)

Important for meLess important

Metformin is the drug that needs to be stopped in this case. NICE recommendations on the use of metformin in the treatment of diabetes mellitus specify that:

A review of the dose of metformin be undertaken if the serum creatinine exceeds 130 micromol/litre or the estimated glomerular filtration rate (eGFR) is below 45 ml/minute/1.73m²

Stop Metformin if the serum creatinine exceeds 150 micromol/litre or the eGFR is below 30 ml/minute/1.73m²

Question:

A 4-month-old baby is brought to the Emergency Department with vomiting for the past 3 days. His mother describes the vomiting as projectile that occurs after every feed and is not settling. On examination the baby appears well. Heart rate is 140bpm, respiratory rate is 36/min, blood pressure is 90/60mmHg, capillary refill is 3 seconds and mucous membranes are slightly dry. He is afebrile. The paediatric registrar comes down to review the baby and decides to admit him for further investigation. Which of the following investigations would be most useful to determine the diagnosis?

A.CT scan

B.Abdominal x-ray

C.Stool cultures

D.Abdominal ultrasound scan

E.Specific IgE antibody screen

Answer:Abdominal ultrasound scan

Explanation:

The infant in this scenario demonstrates classical signs of pyloric stenosis. Projectile vomiting after every feed in a young baby should increase the index of suspicion for possible pyloric stenosis.

The best way to visualise the problem is by using an ultrasound scan which will show hypertrophy of the circular pylorus muscles. This is also the easiest and safest investigation in a young baby.

A good abdominal examination may also reveal a palpable mass in the left upper quadrant.

Question:

Maisy a 2-year-old girl and her mother attend a paediatric neurology clinic. Maisy's mother is concerned she has epilepsy but is reassured by the consultant who explains that Maisy has been having reflex anoxic seizures.

Which of the following features may differentiate between epilepsy and Maisy's diagnosis?

A.Collapsing to the floor

B.Quick recovery following seizure

C.Jerking of arms and legs

D.Stiffening of the body

E.Cyanosis around lips

Answer:Quick recovery following seizure

Explanation:

Reflex anoxic seizures have a rapid recovery unlike epileptic seizures

Important for meLess important

Collapse, jerking, stiffness and cyanosis can all occur in both epilepsy and reflex anoxic seizures. Reflex anoxic seizures typically have a quick recovery, where as epileptic seizures typically have a prolonged recovery.

Question:

A 70-year-old man presents with tiredness. His full blood count and iron studies are shown below.

Hb 95g/l 135-180g/L

MCV 58fL 78-100fL

Platelets 210\* 109/l 150-400\* 109/l

WBC 7\* 109/l 4-11\* 109/l

Ferritin 14ug/L 41-400ug/L

Total iron binding capacity 80micromoles/L 45-66micromoles/L

Which is the most appropriate next investigation?

A.CEA

B.B12 and folate

C.Colonoscopy

D.Bone marrow biopsy

E.Faecal occult blood

Answer:Colonoscopy

Explanation:

The full blood count above shows a microcytic anaemia. The iron studies show that this is due to iron deficiency. Colorectal cancer is a common cause of iron deficiency anaemia in this age group. All men over 60 with iron deficiency anaemia should be referred urgently with suspected cancer to colorectal services where they will likely receive a colonoscopy and OGD.

CEA is a tumour marker for colon cancer however this is used to monitor progression of disease rather than diagnosis due to poor specificity.

B12 and folate deficiency would cause an increased MCV and is therefore definitely not the cause of this mans anaemia.

Bone marrow biopsy may be performed if bone marrow failure was suspected however the patients platelets and white cell count would be reduced if this were the case.

Faecal occult blood is used to screen for bowel cancer but is not used for diagnosis in patients presenting with symptoms or signs of bowel cancer.

Question:

A 45-year-old man attends the emergency department with an 8-hour history of palpitations. He has never experienced anything like this before. His past medical history includes gastritis and alcohol excess.

On examination, his heart rate is 190 beats/min and regular with a blood pressure of 130/94mmHg. He has clear lung fields bilaterally.

ECG: No discernible P waves, QRS duration 90ms.

Valsalva manoeuvre is attempted but is unsuccessful. He is given adenosine 6mg, followed by a further 12mg with no improvement.

What is the next best step in the management of this patient?

A.Adenosine 12mg

B.Adenosine 18mg

C.Adenosine 6mg

D.Carotid sinus massage

E.DC cardioversion

Answer:Adenosine 18mg

Explanation:

For an SVT, the Resus Council recommend escalating adenosine doses of 6mg → 12mg → 18 mg

Important for meLess important

Adenosine 18mg is correct. This patient has supraventricular tachycardia (SVT), a tachyarrhythmia that arises about the level of the Bundle of His (hence narrow QRS complexes <120 ms). Symptoms include chest pain, shortness of breath, palpitations, sweating and anxiety. ECGs of SVT demonstrate regular tachycardia with narrow QRS complexes. P waves may or may not be present but can often be difficult to visualise given the extreme tachycardia. Initial management includes increased vagal stimulation from carotid sinus massage or Valsalva's manoeuvre. However, if this fails, pharmacological treatment with intravenous adenosine in escalating doses of 6mg → 12mg → 18mg can be administered. Given that 6mg and 12mg have both been given and failed, the next step in this patient's management is to administer adenosine 18mg.

Adenosine 12mg is incorrect. Previous guidance from the resuscitation council recommended 6mg → 12mg → 12mg of adenosine. However, this has now been changed to 6mg → 12mg → 18mg.

Adenosine 6mg is incorrect. Guidelines recommend increasing the doses of adenosine during the management of SVT. Therefore, 18mg would be the next appropriate dose to administer.

Carotid sinus massage is incorrect. These are vagal manoeuvres that form the first-line management for SVT. If these fail, pharmacological treatment with adenosine should be tried rather than repeating vagal manoeuvres again. As this patient has not responded to the Valsalva manoeuvre, it is very unlikely that further vagal manoeuvres (e.g. carotid sinus massage) would be successful.

DC cardioversion is incorrect. This would be appropriate if the patient was experiencing adverse features (e.g. ischaemia, syncope, heart failure or shock). However, in the absence of these symptoms, adenosine should be tried initially. Failure of pharmacological cardioversion of SVT with adenosine could also be an indication of DC cardioversion.

Question:

A 55-year-old man is brought into the emergency department with an 8-hour history of sudden onset central chest pain, nausea and shortness of breath. A trial of regular analgesia has not helped the pain subside. His past medical history includes hypercholesterolaemia and hypertension for which he takes atorvastatin, ramipril and amlodipine.

ECG ST-segment depression leads II, III, aVF

His GRACE score is calculated as 4%.

Given the above presentation, what is the next most appropriate management option for this patient?

A.Coronary angiography within 72 hours

B.Discharge with outpatient cardiology follow-up

C.Exercise tolerance test

D.Fibrinolysis within 72 hours

E.Stress echocardiogram

Answer:Coronary angiography within 72 hours

Explanation:

NSTEMI management: patients with a GRACE score > 3% should have coronary angiography within 72 hours of admission

Important for meLess important

Coronary angiography within 72 hours is correct. This patient has features of a non-ST segment elevation myocardial infarction (NSTEMI) given the history of chest pain, nausea and shortness of breath on a background of cardiac risk factors and ECG changes. When assessing a patient with an NSTEMI, it is important to calculate the GRACE score (a risk stratification score to identify those at higher risk of morbidity and mortality). A GRACE score of > 3% warrants a coronary angiography within 72 hours of admission.

Discharge with outpatient cardiology follow-up is incorrect. This patient has symptoms of myocardial ischaemia and a high cardiac risk (given the elevated GRACE score). Therefore, it would be inappropriate to discharge this patient home with outpatient follow-up as the risk of further morbidity and mortality.

Exercise tolerance test is incorrect. This investigation is useful in the detection and evaluation of ischaemic heart disease for a patient with symptoms of angina. However, for a patient with a very likely diagnosis of an NSTEMI combined with a high GRACE score, a coronary angiography +/- stent insertion is more appropriate than an exercise tolerance test.

Fibrinolysis within 72 hours is incorrect. Immediate fibrinolysis would be indicated if the patient was having an ST-segment elevation myocardial infarction (STEMI) due to critical ischaemia of the affected coronary artery. However, delayed fibrinolysis is not generally done. In this scenario, this patient has a diagnosis of an NSTEMI with a high GRACE score and, therefore, a rescue PCI with an angiography within 72 hours is required.

Stress echocardiogram is incorrect. A stress echocardiogram is indicated for detecting cardiac wall motion abnormalities in patients with ischaemic heart disease. It evaluates the heart at rest and in response to pharmacological stress or exercise. Given the elevated GRACE score, it would be more appropriate for this patient to have a coronary angiogram +/- stent insertion.

Question:

A 23-year-old man is diagnosed as having nasal polyps. Sensitivity to which medication is associated with this condition?

A.Sulfa drugs

B.ACE inhibitors

C.Penicillins

D.Paracetamol

E.Aspirin

Answer:Aspirin

Explanation:

Question:

A 23-year-old male attends his general practice due to a large white patch of skin on his back. He reports that it started as a small patch but has increased in size. He denies any itching. Clinical examination reveals the following:

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Which of the following is most associated with the development of this skin disorder?

A.Alopecia areata

B.Cushing's syndrome

C.Iron-deficiency anaemia

D.Primary hyperaldosteronism

E.Type 2 diabetes

Answer:Alopecia areata

Explanation:

The history and large area of skin depigmentation is consistent with a diagnosis of vitiligo. Vitiligo is an autoimmune disorder characterised by the destruction of melanocytes, leading to well-demarcated patches of skin depigmentation. Other autoimmune disorders are associated with vitiligo, such as autoimmune thyroid disease (ie. Hashimoto's thyroiditis), pernicious anaemia, systemic lupus erythematosus, alopecia areata, type 1 diabetes and Addison's disease.

Cushing's syndrome describes the clinical symptoms of hypercortisolism. It is most commonly caused by exogenous corticosteroid exposure. Cushing's syndrome can cause skin changes such as striae, acne, acanthosis nigricans but it is not associated with vitiligo.

Primary hyperaldosteronism is also known as Conn's syndrome. The most common cause of primary hyperaldosteronism is idiopathic bilateral adrenal hyperplasia. It is not an autoimmune disorder and is not associated with vitiligo.

Iron-deficiency anaemia can cause skin manifestations such as pallor, angular cheilitis, pruritus and nail disorders but it is not associated with vitiligo.

Type 2 diabetes is not associated with vitiligo as it is not an autoimmune disorder. However, type 1 diabetes is, therefore it may be associated with the development of vitiligo.

Question:

You are performing a newborn baby check and discover during your examination that the neonate has ambiguous genitalia. On discussing this with the baby's parents, they understandably distressed and want to know what the reason for this is.

What is the most likely cause of the ambiguous genitalia in this case?

A.Kallman's syndrome

B.Androgen insensitivity syndrome

C.Male pseudohermaphroditism

D.Congenital adrenal hyperplasia

E.Cryptorchidism

Answer:Congenital adrenal hyperplasia

Explanation:

Ambiguous genetalia - congenital adrenal hyperplasia is most common cause in newborns

Important for meLess important

Congenital adrenal hyperplasia is the likely cause of ambiguous genitalia.

Individuals with Kallman's syndrome do not have ambiguous genitalia, they are phenotypically and genotypically male, but have hypogonadotrophic hypogonadism. This is often diagnosed at puberty.

Androgen insensitivity syndrome is a condition in which the individual is phenotypically female, they do not have ambiguous genitalia.

Male pseudohermaphroditism is a cause of ambiguous genitalia, but a rare one, external genitalia are female or ambiguous and testes usually present.

Cryptorchidism is undescended testes. It is common at birth, occurring in 1-5% of newborns, but the genitalia is not ambiguous.

Question:

A 5-year-old girl attends clinic with her father. She is being investigated following recurrent fractures, poor dental formation, hearing loss and abnormal bone growth. A diagnosis of osteogenesis imperfecta is suspected.

Which blood results would you expect to see?

A.Raised adjusted calcium, raised PTH (parathyroid hormone), normal ALP (alkaline phosphatase) and low PO4 (phosphate)

B.Low adjusted calcium, low PTH, normal ALP and raised PO4

C.Low adjusted calcium, high PTH, normal ALP and low PO4

D.Raised adjusted calcium, low PTH, raised ALP and raised PO4

E.Normal adjusted calcium, normal PTH, normal ALP and normal PO4

Answer:Normal adjusted calcium, normal PTH, normal ALP and normal PO4

Explanation:

Adjusted calcium, PTH, ALP and PO4 results are usually NORMAL in osteogenesis imperfecta

Important for meLess important

Adjusted calcium, PTH, ALP and PO4 levels are usually normal in osteogenesis imperfecta. This is also known as brittle bone disease. It is a group of disorders of collagen metabolism, resulting in bone frailty and fractures. The most common and mild form is type 1. Presenting features include fractures following minor trauma, blue sclera, deafness secondary to otosclerosis and dental imperfection. It is usually diagnosed in childhood.

A raised adjusted calcium raised PTH, normal ALP and low PO4 may be seen in primary hyperparathyroidism. ALP may be normal or raised here.

Low adjusted calcium, low PTH, normal ALP and raised PO4 may be seen in hypoparathyroidism.

Low adjusted calcium, high PTH, normal ALP and low PO4 can be seen in secondary hyperparathyroidism. PO4 levels can be variable here.

Raised adjusted calcium, low PTH, raised ALP and raised PO4 may be seen when there is a malignant PTH related protein. This can occur in certain cancers including squamous cell lung cancer. ALP may be normal here also.

Question:

A 63-year-old man presents to his GP with an episode of frank haemoptysis. He also reports a dry cough for the past 3 months and is a lifelong smoker.

On examination, he has finger clubbing, striae across his abdomen, and muscle wasting in his arms and legs. There is dullness to percussion on the apex of his left lung.

An urgent chest x-ray confirms a solitary mass in the left lung. Baseline blood tests are performed.

Na+ 131 mmol/L (135 - 145)

K+ 3.8 mmol/L (3.5 - 5.0)

Bicarbonate 23 mmol/L (22 - 29)

Urea 6.7 mmol/L (2.0 - 7.0)

Creatinine 96 µmol/L (55 - 120)

What would be the expected result in a high-dose dexamethasone suppression test for this patient?

A.High cortisol and high ACTH

B.High cortisol and low ACTH

C.High cortisol and normal ACTH

D.Low cortisol and high ACTH

E.Low cortisol and low ACTH

Answer:High cortisol and high ACTH

Explanation:

High-dose dexamethasone suppression test with an ectopic source of ACTH

Cortisol: not suppressed

ACTH: not suppressed

Important for meLess important

This patient has paraneoplastic syndrome from his lung neoplasm, causing Cushing's syndrome and hyponatraemia. When a high dose of dexamethasone is administered in a healthy person, the pituitary gland will stop producing adrenocorticotropic hormone (ACTH) through negative feedback. The tumour, however, will not respond in this way, and so we would expect ACTH to remain high in this patient, and consequently, cortisol will remain high as well. Dexamethasone is used for this test as it has high glucocorticoid and low mineralocorticoid activity, and so will have maximum effect on ACTH production.

High cortisol and low ACTH is incorrect. This result would indicate an ectopic source of cortisol rather than ACTH, such as an adrenal adenoma.

High cortisol and normal ACTH is incorrect as we would expect ACTH to remain high in this patient given the tumour will not respond to the dexamethasone.

Low cortisol and high ACTH is similarly incorrect as we would expect cortisol to remain high.

Low cortisol and low ACTH in a patient with Cushing's syndrome would indicate a pituitary adenoma, as this would respond to dexamethasone unlike ectopic sources of ACTH.

Question:

You are working on the hepatology ward. Your patient, Mr Jeffreys, has end stage liver failure due to hepatitis C. He tells you that he doesn't want his relatives to find out his diagnosis of hepatitis C. Later in the week, his son wants to discuss his father's condition and asks you what has caused the liver failure. What is the best course of action to take?

A.Avoid the question completely by moving the conversation on to a different topic

B.Tell him that the medical team don't know the cause of the liver failure

C.Tell him you are unable to discuss his father's diagnosis

D.Tell him his father has hepatitis C

E.Ask your registrar to answer this question instead

Answer:Tell him you are unable to discuss his father's diagnosis

Explanation:

The GMC guidelines state:

'Confidentiality is an important duty, but it is not absolute. You can disclose personal information if:

(a) it is required by law

(b) the patient consents either implicitly for the sake of their own care or expressly for other purposes

(c) it is justified in the public interest'

In this question, the patient asks for his diagnosis to be kept confidential. There is no requirement by law to tell the son, neither is there a public interest issue here.

Reference: http:www.gmc-uk.org/guidance/ethicalguidance/confidentiality611principles.asp

Question:

A 45-year-old woman presents to the emergency department with a blurring of her vision in her right eye over the last 2 days. During this time, she has experienced deep pain behind her eye which is worse with eye movement.

On examination, her visual acuity is 6/60 and a large central visual field defect is present in the right eye, and the left eye is normal. When shining light into the left eye, both pupils constrict, however, when moving the light to the right eye, both pupils dilate. She denies any numbness, tingling, or weakness.

Given the likely diagnosis, what is the most appropriate next step in her management?

A.IM corticosteroids and MRI of the brain

B.IM corticosteroids and MRI of the brain and orbits

C.IM corticosteroids and MRI of the orbits

D.IV acetazolamide, timolol eyedrops, and MRI of the brain and orbits

E.Steroid and cycloplegics eyedrops and MRI of the brain and orbits

Answer:IM corticosteroids and MRI of the brain and orbits

Explanation:

Subacute unilateral visual loss, eye pain worse on movements → ?optic neuritis

Important for meLess important

Worsening unilateral visual acuity occurring subacutely over hours to days with associated retro-orbital pain that is worse on movement, a relative afferent pupillary defect (RAPD, both eyes dilating when light is shone in the affected eye), and central scotoma (a central visual field defect) suggests a diagnosis of optic neuritis (ON). Although it may occur idiopathically, ON is associated with multiple sclerosis (MS) and its management reflects this, as many patients with MS may present for the first time with ON.

IM corticosteroids and MRI of the brain and orbits is correct. IM corticosteroids should be given as ON can occur secondary to inflammatory conditions such as MS, sarcoidosis, and systemic lupus erythematosus, and corticosteroids can reduce optic nerve inflammation and damage. An MRI of both the brain and orbits should be performed to identify white matter lesions in the brain due to ON's association with MS. The results of this MRI can be used to predict the risk of progression to MS. An MRI of the orbits may show signs of inflammation that support a diagnosis of ON, such as optic nerve swelling and white matter lesions, with the latter being associated with MS.

IM corticosteroids and MRI of the brain is incorrect. Although giving corticosteroids and an MRI of the brain are appropriate, an MRI of the orbits is essential for the confirmation of ON as it shows signs consistent with optic nerve inflammation.

IM corticosteroids and MRI of the orbits is incorrect. Although giving IM corticosteroids and arranging an MRI of the orbits are appropriate, an MRI of the brain must also be performed due to ON's association with MS. An MRI of the brain may show white matter lesions which can be used to predict a patient's progression to MS and can allow for early intervention and diagnosis.

IV acetazolamide, timolol eyedrops, and MRI of the brain and orbits is incorrect as this would be appropriate if this patient was experiencing acute angle-closure glaucoma (AACG), which although it can present with decreased visual acuity and eye pain, symptoms often emerge acutely over hours. There is usually associated systemic upset (such as nausea and vomiting) and patients have a red eye. RAPD is a late sign of AACG. Furthermore, in AACG, an MRI of the brain and orbits are not usually performed.

Steroid and cycloplegics eyedrops and MRI of the brain and orbits is incorrect. Although arranging an MRI of the brain and orbits is appropriate, steroid and cycloplegic eyedrops are used in anterior uveitis, which presents with acute-onset symptoms over hours. Although it can present with severe eye pain and decreased visual acuity, patients often have a red eye, ciliary flush (a ring of red spreading outwards), and an irregular pupil. Since this patient is more likely to have ON, evidence suggests IM corticosteroids are more effective than eye drops.

Question:

A patient 18/40 gestation makes a telephone consultation to your surgery. This is her first pregnancy. She is concerned about not feeling any foetal movements yet.

You reassure her that foetal movements can occur between 18-20 weeks gestation in first pregnancies.

At what gestation is further investigation required if there are not foetal movements felt by this time?

A.20 weeks

B.24 weeks

C.28 weeks

D.32 weeks

E.36 weeks

Answer:24 weeks

Explanation:

If fetal movements have not yet been felt by 24 weeks, referral should be made to a maternal fetal medicine unit

Important for meLess important

RCOG guidelines state that: 'Most women are aware of fetal movements by 20 weeks of gestation.'

If no foetal movements are felt by 24/40, the woman should be referred to foetal medicine unit to check for neuromuscular conditions.

Question:

A 50-year-old woman presents with right-sided medial thigh pain for the past week. There has been no change in her bowels. On examination you noticed a grape sized lump below and lateral to the right pubic tubercle which is difficult to reduce. What is the most likely diagnosis?

A.Inguinal hernia

B.Richter hernia

C.Spigelian hernia

D.Obturator hernia

E.Femoral hernia

Answer:Femoral hernia

Explanation:

Question:

A 69-year-old man with terminal lung cancer is reviewed. He currently takes MST (oral, modified-release morphine) 60mg bd for pain. He has become unable to take oral medications and a decision is made to set-up a syringe driver. What dose of diamorphine should be prescribed for the syringe driver, to cover a 24-hour period?

A.60 mg

B.40 mg

C.120 mg

D.30 mg

E.20 mg

Answer:40 mg

Explanation:

To convert from oral morphine to diamorphine the total daily morphine dose (60 \* 2 = 120mg) should be divided by 3 (120 / 3 = 40mg)

Question:

A 66-year-old man presented to his general practitioner with a longstanding history of leg swellings is now also complaining of becoming short of breath when walking. He has a background of chronic obstructive pulmonary disease, ischaemic heart disease and diabetes mellitus. He recently stopped smoking after doing so for the last 40 years and is now retired at home living with his wife in a two-bedroom house. Upon examination, he had a pansystolic murmur loudest at the left sternal edge with peripheral pitting oedema to the shins and a clear chest when auscultated. He appeared comfortable at rest and was not in any distress.

What is the most likely cause for his murmur?

A.Connective tissue disorder

B.Hyperdynamic circulation

C.Patent ductus arteriosus

D.Pulmonary hypertension

E.Ventricular septal rupture

Answer:Pulmonary hypertension

Explanation:

Functional tricuspid regurgitation often occurs secondary to pulmonary hypertension

Important for meLess important

Functional tricuspid regurgitation often occurs secondary to pulmonary hypertension as a result of chronic lung disease such as chronic obstructive pulmonary disease (COPD) producing a loud pulmonary component of the second heart sound, raised jugular venous pressure and a pansystolic murmur in the left lower sternal edge.

Other secondary causes of tricuspid regurgitation involve mitral valve stenosis and regurgitation as well as pulmonary thromboembolism.

Ventricular septal rupture is a rare but serious complication of myocardial infarction which can occurs 2-8 days after an infarction and often precipitates cardiogenic shock. It can give rise to a pansystolic murmur at the lower left sternal edge.

Patent ductus arteriosus (PDA) produces a continuous 'machine-like' murmur which is commonly seen in newborns.

Connective tissue disorders can give rise to various murmurs. Aortic regurgitation can occur in Marfan's syndrome. Mitral valve prolapse can occur in Marfan's syndrome and Ehler's Danlos Syndrome.

Hyperdynamic circulation of the blood can produce a functional murmur in cases of anaemic or thyrotoxic states.

Question:

You are working in the emergency department reviewing a 48-year-old female patient who has presented with a 12 hour history of severe right upper quadrant (RUQ) pain.

On examination, you note she has marked scleral jaundice and is tender on abdominal palpation in the RUQ. Her observations show a heart rate of 88 beats per minute, respiratory rate of 18/min, oxygen saturations of 99% on room air and her temperature is recorded at 36.2ºC. She is alert and is orientated to time and place. Whilst examining the patient she also mentions to you that she has a widespread itch and that she has vomited 3 times since the onset of pain. The patient has no history of itchy skin or dermatological pathology. She takes no medications and has no known allergies.

Blood tests show the following:

Bilirubin 50 µmol/L (3 - 17)

ALP 180 u/L (30 - 100)

ALT 67 u/L (3 - 40)

γGT 66 u/L (8 - 60)

Albumin 52 g/L (35 - 50)

Hb 132 g/L Male: (135-180)

Female: (115 - 160)

Platelets 247 \* 109/L (150 - 400)

WBC 4.8 \* 109/L (4.0 - 11.0)

Na+ 146 mmol/L (135 - 145)

K+ 3.6 mmol/L (3.5 - 5.0)

Bicarbonate 22 mmol/L (22 - 29)

Urea 11 mmol/L (2.0 - 7.0)

Creatinine 120 µmol/L (55 - 120)

What is the most likely cause of this patient's widespread itch?

A.Uraemic pruritus

B.Hyperbilirubinaemia

C.Raised ALP

D.Renal itch

E.Atopic dermatitis

Answer:Hyperbilirubinaemia

Explanation:

Patients presenting with cholestasis may show increased levels of bilirubin. High levels of bilirubin may cause itch

Important for meLess important

This patient is presenting with gallstones with the classical symptoms of RUQ pain and jaundice. As a complication of her cholelithiasis she has developed cholestatic pruritus, which occurs when conjugated bilirubin builds up as a result of the obstructing gallstone. This hyperbilirubinaemia can cause pruritus however the severity of itch is not directly correlated to the level of bilirubin.

This patient has a disproportionately raised ALP compared to a mildly raised AST - this is commonly seen in patients with gallstones. Although these blood results would be associated with gallstones, a raised ALP is not a cause for itch, and, as such, this answer is incorrect.

This patient has been vomiting and as a result has become mildly dehydrated (as evidenced by the mildly raised urea, creatinine and albumin). Raised urea can cause uraemic pruritus but this is not typically seen in acutely raised urea, and is more associated with chronic kidney disease.

Similarly, renal itch is associated with patients with chronic renal failure. This patient has no history of any renal problems.

Atopic dermatitis could cause widespread itch but the patient does not have any dermatological history.

Question:

A 75-year-old male is found unconscious by his wife. He had previously been fit and well. He has a past medical history of long standing uncontrolled hypertension. On examination you note quadriplegia and small reactive pupils. He has a Glasgow coma score of 6 (M2, E2, V2).

What is the most likely diagnosis?

A.Total anterior circulation syndrome

B.Partial anterior circulation syndrome

C.Lacunar infarct

D.Posterior circulation stroke syndrome

E.Pontine haemorrhage

Answer:Pontine haemorrhage

Explanation:

Pontine haemorrhage is a life-threatening condition. It often occurs as a complication secondary to chronic hypertension. Patients often present with reduces Glasgow coma score, quadriplegia, miosis, and absent horizontal eye movements.

Question:

A 56-year-old man presents with a lesion on his lower lip. He states that it has been growing in size over the last 3 months.

On examination, you note a 1x2cm ulcerated crusted lump on his lower lip.

The patient is concerned about facial scarring and would like the least invasive procedure possible.

What treatment is indicated?

A.Cryotherapy

B.Diclofenac topical gel

C.Mohs micrographic surgery

D.Surgical excision with 4mm margin

E.Surgical excision with 6mm margin

Answer:Mohs micrographic surgery

Explanation:

The most common malignancy in the lower lip is a squamous cell carcinoma

Important for meLess important

The diagnosis is most likely squamous cell carcinoma (SCC) of the lip. Indeed the most common malignancy affecting the lower lip is SCC and the features present in this case are typical.

Mohs micrographic surgery is correct. Mohs micrographic surgery may be used in high-risk patients and in cosmetically important sites (e.g. face). Mohs surgery is designed to minimise scarring at the outset, by creating the smallest post-surgical wound possible. It is therefore the best form of treatment in this case.

Cryotherapy is incorrect. Cryotherapy is used for some early squamous cell cancers, especially in people who can not have surgery. Superficial, in situ, or SCC less and equal to 1 cm has been successfully treated with cryosurgery with results comparable to traditional surgical excision. In this case, the lesion is > 1cm and therefore surgery is required.

Diclofenac topical gel is incorrect. This can be used to treat actinic keratosis (the most common precursor lesion for squamous cell carcinoma). Actinic keratosis may be solitary but there are often multiple keratoses. The appearance varies. However classically they present with flat to slightly raised, scaly, and crusty lesions which sometimes have a raised horn shape or bump. They usually occur on sun exposure sites (e.g. the scalp). In this case, the presence of ulceration, and the location of the lesion on the lower lip, favour a diagnosis of SCC.

Surgical excision with 4mm margin is incorrect. Surgical excision with 4mm margins is preferred if the lesion is <20mm in diameter. However, for cosmetically important sites, Mohs surgery is preferred.

Surgical excision with 6mm margin is incorrect. Surgical excision with 6mm margins is preferred if the lesion is >20mm in diameter. However, for cosmetically important sites, Mohs surgery is preferred.

Question:

A 40-year-old presents with generalised weakness and visual issues. She reports first noticing some blurring and double vision 4 days ago. A day later she then developed difficulty getting up from a chair and lifting her arms up which seems to have spread now to her hands and feet. She reports returning from a hiking tour in Central America 2 weeks ago where she was treated with antibiotics for an infection.

On exam, she has proximal muscle weakness and an ataxic gait. Her sensation is normal throughout but reflexes are diminished. Eye weakness with diplopia is also noted.

Given the patient’s likely diagnosis, what is the most likely causative pathogen?

A.Borrelia burgdorferi

B.Campylobacter jejuni

C.Cytomegalovirus

D.Epstein-Barr virus

E.Trypanosoma cruzi

Answer:Campylobacter jejuni

Explanation:

Guillain-Barre syndrome is classically triggered by Campylobacter jejuni infection

Important for meLess important

This patient has presented with the typical finds of Miller-Fisher syndrome, a variant of Guillain-Barre syndrome. The condition is classically associated with ophthalmoplegia, which normally develops first, a descending paralysis with areflexia and ataxia. As with Guillain-Barre syndrome, Miller-Fisher syndrome is often triggered by an infection, the commonest being Campylobacter jejuni which accounts for approximately 30% of cases. Campylobacter jejuni is common throughout the developing world including central America where food hygiene may be reduced and therefore contamination risk higher.

Borrelia burgdorferi is the causative infective agent in Lyme disease. It is transmitted by tick bites therefore there is normally a history of exposure with the patient recently spend time somewhere ticks are present i.e. a woodland area. Lyme disease can present with a variety of symptoms but typically is associated with an erythema migrans rash, muscle and joint pain before progressing to arrhythmias, etc. A descending weakness is not commonly seen in Lyme disease.

Cytomegalovirus (CMV) is a recognised infective agent triggering Guillain-Barre syndrome and its variants however it is far less commonly associated with the condition than Campylobacter jejuni. CMV has also been associated with triggering other auto-immune conditions including myocarditis and possibly type 1 diabetes.

Although rare, Epstein-Barr virus (EBV), has been associated with Guillain-Barre syndrome and its variants however far less so than Campylobacter jejuni. EBV has been associated with other conditions including multiple sclerosis and rheumatoid arthritis.

Trypanosoma cruzi is the causative infective agent of Chagas disease, also known as American trypanosomiasis, spread by insects known as Triatominae that are present throughout Central and South America. The condition normal comprises an acute stage, which develops a few weeks after the insect bite and includes mild symptoms of fever and malaise followed by a chronic stage which develops over many years and consists of chronic fatigue, enlargement of the liver, spleen, and lymph nodes. If untreated patients can eventually progress to developing cardiac issues such as arrhythmias and cardiomyopathies. Chaga’s disease is not associated with neuropathies or eye issues as seen in this patient.

Question:

A 17-year-old girl presents with a sore throat. On examination she has inflamed tonsils covered in white patches. Tender cervical lymphadenopathy and a low grade pyrexia are also present. Which one of the following organisms is most likely to be responsible?

A.Streptococcus viridans

B.Streptococcus agalactiae

C.Streptococcus pneumoniae

D.Staphylococcus aureus

E.Streptococcus pyogenes

Answer:Streptococcus pyogenes

Explanation:

Question:

A 76-year-old man who is brought to the emergency department by his daughter. She reports that he has been generally unwell for the past 2 weeks, with a reduced appetite.

His past medical history includes heart failure, atrial fibrillation and hypothyroidism.

On examination, he appears mildly confused. His pulse is 75/min, temperature 36.1º and blood pressure of 120/76 mmHg.

An ECG is performed:

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What is the most likely diagnosis?

A.Digoxin toxicity

B.Myocarditis

C.Myxoedema coma

D.Non ST-elevation myocardial infarction

E.Posterior ST-elevation myocardial infarction

Answer:Digoxin toxicity

Explanation:

Note the downsloping ST-depression, inverted T waves and short QT interval on the ECG. Anorexia and confusion are also common findings in patients with digoxin toxicity.

Question:

A 29 year-old woman visits her general practitioner to discuss smoking cessation, having just discovered that she is ten weeks pregnant. She has tried to give up several times in the past using motivational interviewing sessions but was unsuccessful. She wants to know if there are any medications that might help her. Which of the following could be prescribed for this purpose?

A.Varenicline

B.Chlordiazepoxide

C.Bupropion

D.Nicotine replacement patch

E.Amitriptyline

Answer:Nicotine replacement patch

Explanation:

Pregnant women who smoke: nicotine replacement therapy should be offered, varenicline and bupropion are contraindicated

Important for meLess important

Nicotine replacement therapy is the pharmacological treatment of choice in pregnancy, though it is preferable to achieve smoking cessation without medication where possible. The BNF states that neither bupropion or varenicline should be offered to pregnant women. Varenicline has been shown to be harmful to fetuses in animal studies, and insufficient safety information is available for bupropion.

Chlordiazepoxide is used in the treatment of alcohol withdrawal and has no role in smoking cessation. Amitriptyline is used in the management of neuropathic pain, depressive illness and migraine prophylaxis, but not for smoking cessation.

[BNF]

Question:

Oscar is a 70-year-old man who presents to the emergency department with a 1-week history of worsening dyspnoea. He reports smoking one pack of cigarettes per day for the past 50 years. He has no history of recent trauma, fever, productive cough, or weight loss.

On examination, there is hyper resonance and reduced breath sounds on the upper right hand side of the chest.

A chest X-ray shows a large lucent areas over the right lung without a visible wall. As a result, a chest tube was inserted under the presumed diagnosis of a spontaneous pneumothorax. However, there is no symptomatic relief for Oscar and a follow-up chest X-ray reveals no improved expansion of the right lung.

What is the most probable diagnosis?

A.Atelectasis

B.Emphysematous bullae

C.Lung cyst

D.Lung malignancy

E.Pneumatocele

Answer:Emphysematous bullae

Explanation:

Large bullae in COPD can mimic a pneumothorax

Important for meLess important

The correct answer is a large bullae as a result from COPD. Bullae are air spaces in the lung measuring >1cm in diameter when distended. The most common cause of bullae is cigarette smoking and emphysema. Large bullae in COPD can frequently mimic a pneumothorax and therefore should be differentiated carefully when chest radiography in a smoker presents with large lucent areas. On chest radiography, bullae appear as lucency without a visible wall.

Atelectasis is unlikely to occur spontaneously and would not reveal large lucent areas, particularly in the upper lung.

A lung cyst would appear on chest radiography as a lucency with a thin wall. Furthermore, there would be more infective symptoms such as fever, productive cough, and malaise.

Lung malignancy would appear as a lucency with a thick wall (>3mm) on chest radiography. Furthermore, one would expect symptoms such as unexpected weight loss, night sweats or haemoptysis.

Pneumatoceles are intra-pulmonary air filled cystic spaces, usually caused as a result of ventilator induced lung injury. Therefore this is unlikely given the history. Pneumatoceles also tend to appear as a lucency with a thin wall on radiography.

Question:

A patient presents to the GP with intermittent flank pain. He also mentions that he has been needing to go to the toilet to pass urine more often and that sometimes he wakes up multiple times during the night to do so. This has caused significant disruption to his sleep and mood. There is no significant past medical history or drug history. The patient has no known drug allergies. The GP arranges for a bone profile to be done and the results are shown below.

Parathyroid hormone 5.6 pmol/L (1.6-6.9)

Calcium 2.8 mmol/L (2.1-2.6)

Phosphate 0.6 mmol/L (0.8-1.4)

What is the definitive management for this patient?

A.Carbimazole

B.Cinacalcet

C.IV 0.9% saline

D.Total parathyroidectomy

E.Total thyroidectomy

Answer:Total parathyroidectomy

Explanation:

The definitive management of primary hyperparathyroidism is total parathyroidectomy

Important for meLess important

The patient has primary hyperparathyroidism which presents with a high or 'inappropriately' normal PTH, high calcium and low phosphate. Hypercalcaemia is associated with psychiatric depression. His intermittent flank pain is suggestive of renal stones and hypercalcaemia causes diabetes insipidus which is why he is experiencing polyuria. Features of primary hyperparathyroidism include but are not limited to polyuria, polydipsia, abdominal pain, bone pain, renal stones and depression. The features are easily remembered using the phrase 'bones, stones, abdominal groans and psychic moans'.

The definitive treatment for primary hyperparathyroidism is total parathyroidectomy. It can be managed conservatively with monitoring and vitamin D supplementation (if they are deficient) if the calcium level is less than 0.25 mmol/L above the upper limit and the patient does not have any end-organ damage. Bisphosphonates and cinacalcet, which is a calcium mimetic, are used in managing patients with hyperparathyroidism who are not suitable for surgery.

Carbimazole is used in managing hyperthyroidism NOT hyperparathyroidism.

0.9% saline is the management of acute hypercalcaemia and NOT hyperparathyroidism.

Question:

A 74-year-old patient on a surgical ward is identified as unresponsive by a healthcare assistant. The emergency buzzer is pulled, and the responding doctor confirms cardiac arrest and orders for CPR to start and a defibrillator to be attached to the patient.

A rhythm check is performed, and the doctor states that the patient is in ventricular fibrillation.

What is the most appropriate next step?

A.Administer 300mg of amiodarone

B.Administer 6mg of atropine

C.Continue CPR for 2 minutes and then reassess rhythm

D.Deliver 1 shock

E.Deliver 1 shock and 1mg of adrenaline

Answer:Deliver 1 shock

Explanation:

VF/pulseless VT should be treated with 1 shock as soon as identified

Important for meLess important

Ventricular fibrillation is a shockable rhythm, and therefore the most appropriate action, in this case, is to deliver 1 shock. The other type of shockable rhythm is ventricular tachycardia. CPR should be continued for 2 minutes after the shock is delivered, and then the rhythm should be assessed once more.

It is incorrect to administer 300mg of amiodarone as this is only done after the third unsuccessful shock of a shockable rhythm, and the patient, in this case, has developed ventricular fibrillation which is a shockable rhythm.

Atropine is not used during a cardiac arrest but is instead used in the management of bradycardias. Therefore it is not appropriate toadminister 6mg of atropine to this patient as they are in cardiac arrest.

As a shockable rhythm has been identified in this patient, a shock should be delivered as soon as it is safe to do so. It is therefore incorrect to continue CPR for 2 minutes and then reassess rhythm.

While this patient has developed a shockable rhythm, it is not appropriate to deliver adrenaline in a shockable rhythm until after the 3rd shock. Therefore it would be incorrect to deliver 1 shock and 1mg of adrenaline as the first step in this case.

Question:

A 65-year-old man with a background of chronic obstructive pulmonary disease (COPD) visits his GP for a review of his medication. He is currently using an ipratropium inhaler four times a day to help relieve his symptoms. However, he is still breathless most of the day and has had two exacerbations in the last 6 months. He has no personal or family history of atopy and no asthmatic features.

A recent full blood count shows:

Result Reference Range

Hb 156 g/L Male: (135-180)

Female: (115 - 160)

Platelets 275 \* 109/L (150 - 400)

WBC 5.9 \* 109/L (4.0 - 11.0)

Neuts 3.4 \* 109/L (2.0 - 7.0)

Lymphs 1.9 \* 109/L (1.0 - 3.5)

Mono 0.5 \* 109/L (0.2 - 0.8)

Eosin 0.1 \* 109/L (0.0 - 0.4)

Which of the following is most appropriate in terms of this patient's management?

A.Continue ipratropium with the addition of salmeterol and beclomethasone

B.Continue ipratropium with the addition of salmeterol and tiotropium

C.Stop ipratropium and start salbutamol

D.Stop ipratropium and start salbutamol, salmeterol and tiotropium

E.Continue ipratropium and follow up in 3 months

Answer:Stop ipratropium and start salbutamol, salmeterol and tiotropium

Explanation:

COPD: Discontinue SAMA (switch to SABA) if commencing LAMA

Important for meLess important

This patient is currently on step 1 of the pharmacological ladder for COPD. However, he is limited by his symptoms and has experienced several exacerbations and so should move on to step 2.

As this patient does not have features of asthma or steroid responsiveness, the SAMA (ipratropium) should be switched for a SABA (salbutamol), with the addition of a LABA (salmeterol) and LAMA (tiotropium).

NICE states features of asthma or steroid responsiveness include:

Previous diagnosis of asthma or atopy

High eosinophil count

Substantial variation in FEV1 over time (≥400ml)

Substantial diurnal variation in PEF (≥20%)

Question:

A 32-year-old female presents to the emergency department after suffering from palpitations and excessive sweating for the past 2 and a half days. When questioned, she has no other symptoms, but admits to consuming a large quantity of alcohol and coffee 4 days previously. She has a past medical history of Wolff-Parkinson-White syndrome, which was diagnosed 13 years ago.

Observations show the patient is afebrile, with a respiratory rate of 22 breaths/min, pulse of 73 beats/min, blood pressure of 122/83 mmHg and oxygen saturations of 95% on room air.

A 12-lead ECG is performed, which shows atrial fibrillation (AF).

Cardioversion is contraindicated in this patient for what reason?

A.Her oxygen saturations

B.Her past medical history

C.Her recent consumption of large quantities of alcohol

D.Her recent consumption of large quantities of caffeine

E.The duration of her symptoms

Answer:The duration of her symptoms

Explanation:

New onset AF is considered for electrical cardioversion if it presents within 48 hours of presentation

Important for meLess important

The patient is presenting with of symptoms of palpitations and sweating, both of which are characteristic of AF. As symptoms initially occurred over 48 hours ago, the cut-off for cardioversion without anticoagulation has already elapsed, meaning the procedure is currently contra-indicated. Please note, Wolff-Parkinson-White, which is a pre-excitation syndrome, and consumption of large quantities of alcohol and caffeine all predispose to AF.

Pre-excitation refers to early activation of the ventricles, caused by impulses bypassing the AV node, due to an aberrant electrical pathway in the heart. Several types of pre-excitation syndromes have been described in addition to Wolff-Parkinson-White syndrome. One example is Lown-Ganong-Levine syndrome, which is caused by an aberrant connection between the atria and bundle of His.

All of the other listed answers are wrong as they have no bearing on whether cardioversion may be given to a patient.

Question:

A 23-year-old woman presents to the GP requesting advice after having unprotected sexual intercourse the previous night. She took a dose of levonorgestrel 1.5mg (Levonelle) as emergency contraception approximately 12 hours after having intercourse. It is currently day 12 of her menstrual cycle.

She is very anxious that she may fall pregnant and would like to start taking a combined oral contraceptive pill (COCP) to avoid similar situations in the future.

How soon can she commence taking a COCP?

A.Immediately

B.24 hours after her dose of levonorgestrel

C.72 hours after her dose of levonorgestrel

D.120 hours after her dose of levonorgestrel

E.On day 1 of her next menstrual cycle

Answer:Immediately

Explanation:

Hormonal contraception can be started immediately after using levonorgestrel (Levonelle) for emergency contraception

Important for meLess important

Immediately is the correct answer. There is no evidence that the effectiveness of levonorgestrel is reduced by concurrent use of hormonal contraception (pill, patch or ring). This patient can therefore commence the COCP immediately.

By contrast, using ulipristal acetate emergency contraception (EllaOne) concurrently with hormonal contraception reduces the effectiveness of both therapies. Patients should wait 5 days after taking ulipristal acetate before commencing a COCP regimen.

24 hours is the time window within which the COCP must be taken each day to ensure effective contraception.

72 hours post-unprotected sexual intercourse is the time window within which levonorgestrel emergency contraception must be taken.

5 days is the correct interval to wait before starting (or re-starting) hormonal contraceptions following use of ulipristal acetate (EllaOne) emergency contraception. 5 days post-unprotected sexual intercourse is also the window within which ulipristal acetate (EllaOne) or copper intrauterine device (IUD) emergency contraception must be used.

Day 1 of the menstrual cycle is typically the preferred day to start a COCP regimen, as it ensures immediate protection from pregnancy. However, it is not the earliest option in this scenario.

Question:

A 73-year-old female patient is admitted with symptomatic anaemia. They are crossmatched for a transfusion of 2 units of packed red cells. A few minutes after the transfusion is commenced, she begins to feel very unwell, complaining of chills and breathlessness. Visible rigors are noted. Blood pressure is 83/47 mmHg.

What is the pathophysiological cause of her symptoms?

A.Acute phase response to bacterial infection

B.Binding of IgG-type antibodies to red blood cells causing haemolysis

C.Binding of IgM-type antibodies to red blood cells causing haemolysis

D.Increased pulmonary capillary pressure

E.Release of IgE antibodies and mast cell activation

Answer:Binding of IgM-type antibodies to red blood cells causing haemolysis

Explanation:

Acute haemolytic transfusion reactions are usually the result of RBC destruction by IgM-type antibodies

Important for meLess important

The history of sudden onset hypotension, fever and dyspnoea is suggestive of ABO-incompatibility haemolytic transfusion reaction. Anti-A and anti-B antibodies are IgM-type antibodies which bind to red blood cells causing haemolysis in haemolytic transfusion reactions.

Bacterial contamination of blood products can result in a transfusion reaction, which typically develops over hours rather than minutes.

Haemolytic transfusion reactions are usually the result of IgM type antibodies, rather than IgG binding to red blood cells.

Pulmonary oedema may occur in transfusion and would cause breathlessness. It does not explain rigors and hypertension would be more typical than hypotension in fluid overload.

Anaphylaxis may cause hypotension and breathlessness but is less likely to result in rigors. Patients with anaphylaxis may also complain of urticaria or symptoms of laryngeal oedema.

Question:

A 31-year-old woman presents for review in the outpatients' department. She has a past medical history of polycystic ovarian syndrome and has been unsuccessfully attempting to conceive for the past ten months.

Upon examination she is hirsute. Height and weight measurements are taken, confirming a body mass index (BMI) of 24kg/m².

What is the most appropriate management option for this patient?

A.Clomifene

B.Goserelin

C.In vitro fertilisation (IVF)

D.Metformin

E.Weight loss

Answer:Clomifene

Explanation:

Infertility in PCOS - clomifene is typically used first-line

Important for meLess important

The correct answer is clomifene. This patient is experiencing subfertility - a common consequence of polycystic ovarian syndrome (PCOS). In the absence of contraindications, clomifene tends to be used as a first-line treatment for fertility issues in the context of PCOS. Compared to other treatments for anovulation such as gonadotropins, clomifene has a lower risk of inducing ovarian hyperstimulation syndrome.

Goserelin is incorrect. Goserelin is a gonadotropin-releasing hormone agonist used in the treatment of hormone-sensitive prostate cancer. Polycystic ovarian disease is listed in the BNF as a caution when prescribing goserelin, as, upon commencement of treatment, levels of luteinizing hormone are likely to rise even higher.

In vitro fertilisation (IVF) is incorrect. Women aged under 40 are typically not offered IVF for infertility until they have been trying to conceive for a total of two years. Although there may be some flexibility in the approval criteria for women with endocrine conditions such as PCOS, it would be more appropriate to try medical optimisation of fertility with agents such as clomifene before referral for IVF.

Metformin is incorrect. Although metformin may have a role in the promotion of fertility in patients with PCOS who are obese, for this patient, who has a normal BMI, metformin as monotherapy is an inferior option to clomifene.

Weight loss is incorrect. This patient has a BMI within the normal range. It is unlikely that her weight is contributing significantly to her subfertility, and she should be offered pharmacological therapy with clomifene rather than lifestyle advice alone.

Question:

A 31-year-old pregnant woman presents for her 42-week antenatal visit. It had been agreed in a previous antenatal visit that she would be induced at 42 weeks if she hadn't gone into labour naturally by this point. She reports normal foetal movements and denies recent illness. This is her first pregnancy and she has no relevant past medical history. On examination, her abdomen is soft with a palpable uterus and a fundal height of 40cm.

What is the most important to be assessed in this woman?

A.Bishop score

B.Cervical effacement

C.Cervical dilation

D.Foetal station

E.Foetal heart rate

Answer:Bishop score

Explanation:

The Bishop Score should be assessed prior to induction of labour

Important for meLess important

The Bishop score should be assessed in all women prior to induction of labour. It has the following components:

Cervical position (posterior/intermediate/anterior)

Cervical consistency (firm/intermediate/soft)

Cervical effacement (0-30%/40-50%/60-70%/80%)

Cervical dilation (<1 cm/1-2 cm/3-4 cm/>5 cm)

Foetal station (-3/-2/-1, 0/+1,+2)

A score of less than 5 indicates that labour is unlikely to start without induction.

Cervical effacement should be assessed in this woman as it is part of the Bishop score, but it is not the only thing that should be assessed.

Cervical dilation should be assessed in this woman as it is also part of the Bishop score, but it is not the only thing that should be assessed.

The foetal station should be assessed in this woman as it is also part of the Bishop score, but it is not the only thing that should be assessed.

Foetal heart rate should be monitored during labour and a CTG may be used for this. It may also be done before induction of labour, but it is not the most important thing to assess.

Question:

Which one of the following side-effects is least recognised in patients taking ciclosporin?

A.Hypokalaemia

B.Hyperplasia of the gum

C.Hypertension

D.Tremor

E.Excessive hair growth

Answer:Hypokalaemia

Explanation:

Ciclosporin side-effects: everything is increased - fluid, BP, K+, hair, gums, glucose

Important for meLess important

Hyperkalaemia rather than hypokalaemia is seen with ciclosporin use

Question:

Which one of the following features is least typical of polymyalgia rheumatica?

A.Elevated creatine kinase

B.Low-grade fever

C.Morning stiffness in proximal limb muscles

D.Polyarthralgia

E.Anorexia

Answer:Elevated creatine kinase

Explanation:

Question:

A 19-year-old man presents to the GP with a three-day history of urethral discharge and a burning sensation when urinating. He has had multiple sexual partners, both male and female, over the last six months. He does not like to use condoms and has severe needle phobia and does not want intramuscular injections.

Physical examination reveals a whitish discharge at the urethral meatus and mild discomfort on palpation of the right testes. His systemic examination is unremarkable. Microscopic examination of gram-stained smears of his urethral discharge shows gram-negative diplococci.

Which of the following is the most appropriate management for this patient?

A.Intramuscular benzathine penicillin

B.Intramuscular ceftriaxone

C.Oral azithromycin

D.Oral cefixime plus oral azithromycin

E.Oral doxycycline

Answer:Oral cefixime plus oral azithromycin

Explanation:

For patients with gonorrhoea, a combination of oral cefixime + oral azithromycin is used if the patient refuses IM ceftriaxone

Important for meLess important

The sign and symptoms and the history in this patient are suggestive of gonorrhoea infection. Gonorrhoea is caused by gram-negative diplococcus Neisseria gonorrhoeae. According to the 2019 British Society for Sexual Health and HIV (BASHH) guidelines the new first-line treatment for gonorrhoea infection is a single dose of intramuscular ceftriaxone. However, if ceftriaxone is refused (e.g. needle-phobic) then oral cefixime and oral azithromycin should be used.

Intramuscular benzathine penicillin is a recommended treatment for suspected or confirmed syphilis.

Although ceftriaxone is the recommended first-line treatment for gonorrhoea, it is not the correct answer here because the patient has severe needle phobia.

Although azithromycin can sometimes be used to treat gonorrhoea, it is usually given in combination with other drugs (i.e. cefixime).

Doxycycline is the first-line treatment for Chlamydia trachomatis infection.

Question:

A 54-year-old female presents to the GP with fatigue. Her GP takes some blood tests which are included below.

Hb 104 g/L Female: (115 - 160)

Platelets 198 \* 109/L (150 - 400)

WBC 7.0 \* 109/L (4.0 - 11.0)

Ferritin 80 ng/mL (20 - 230)

Folate 2.2 nmol/L (> 3.0)

As a consequence, she is started on folic acid supplementation.

A few weeks later she presents to the emergency department with tingling and weakness in her lower limbs.

What pattern of deficits would you expect to find?

A.Loss of pain and temperature sensation, muscle weakness and hyperreflexia

B.Loss of proprioception and vibration sensation, muscle weakness and hyperreflexia

C.Loss of proprioception and vibration sensation, muscle weakness and hyporeflexia

D.Muscle weakness and hyperreflexia without sensory changes

E.Muscle weakness and hyporeflexia without sensory changes

Answer:Loss of proprioception and vibration sensation, muscle weakness and hyperreflexia

Explanation:

In subacute combined degeneration of the spinal cord, the dorsal columns and lateral corticospinal tracts are affected

Important for meLess important

This patient has subacute combined degeneration of the cord which has been precipitated by folic acid supplementation. This patient should have had her vitamin B12 level checked and treated before correcting any folate deficiency to avoid this. Given her demographics, it may be that she has pernicious anaemia (autoantibodies developed against intrinsic factor) and will need intramuscular treatment with vitamin B12. Note that in many B12 deficient patients anaemia develops later than subacute combined degeneration of the cord.

Subacute combined degeneration of the cord affects the dorsal columns (proprioception, vibration sense and tactile discrimination). The tingling that is experienced comes from the effect on the dorsal columns and is often the earliest symptom.

The corticospinal tracts are also affected, causing muscle weakness and hyperreflexia. Patients can also experience spasticity and persistent weakness if the condition is not treated. The Babinski sign and ankle clonus may also be elicited. However, notably, the ankle reflex can often be absent.

Subacute combined degeneration of the cord does not affect the spinothalamic tracts, so the patient would not experience loss of pain and temperature sensation.

Note that symptoms may initially be in the lower limbs or upper limbs, or affect all four limbs coincidently.

Question:

A 78-year-old lady with known type 2 diabetes presents with a 1-week history of polydipsia, feeling generally unwell and drowsy. On examination, she looks very dehydrated and is difficult to rouse. She appears confused when she does talk to you.

Admission bloods show:

Na+ 149 mmol/l

K+ 5.2 mmol/l

Urea 22.1 mmol/l

Creatinine 254 µmol/l

Her blood glucose is 36 mmol/L.

What's the most important first management step?

A.Give 10 units of Actrapid (short-acting insulin) immediately

B.Replace K+

C.Give calcium gluconate due to hyperkalaemia

D.Rehydrate with 0.9% Saline

E.Start Insulin sliding scale

Answer:Rehydrate with 0.9% Saline

Explanation:

This patient has hyperosmolar hyperglycaemic state (HHS). HHS is characterised by:

1.) Severe hyperglycaemia

2.) Dehydration and renal failure

3.) Mild/absent ketonuria

HHS has a mortality of 50%. This partly because of its' insidious onset but also because many cases occur in newly diagnosed type 2 diabetics. The mortality of HHS occurs from complications of the hyperosmolar state namely; rhabdomyolysis, venous thromboembolism, lactic acidosis, hypertriglyceridaemia, renal failure, stroke and cerebral oedema.

It is important to look for precipitants of HHS. Precipitants include:

New diagnosis of type 2 diabetes

Infection

High dose steroids

Myocardial infarction

Vomiting

Stroke

Thromboembolism

Poor treatment compliance

The central management of HHS is supportive care and slow metabolic resolution. Patient with HHS often have a deficit of over 8 litres. Caution to avoid rapid fluid replacement as rapid osmolar shifts can cause cerebral oedema.

In this question the first priority should be fluid resuscitation. The commencement of a sliding scale would be a close second and in reality, would probably be prescribed at the same time although some schools of thought advise waiting 1 hour before starting insulin to avoid rapid changes and pontine myelinolysis. The fluid alone will lower the blood sugar and some argue that giving insulin straight away can lower the osmolality precipitously.

Question:

A 58-year-old gentleman is admitted with a high stoma output from his ileostomy. He underwent a colectomy 10 years ago due to severe ulcerative colitis. He feels weak and complains of leg cramps. He reports intermittent episodes of palpitations. His abdomen is soft with slight generalised tenderness.

His bloods show:

Na+ 138 mmol/l

K+ 2.2 mmol/l

Urea 13.3 mmol/l

Creatinine 150 µmol/l

ECG shows flattened T waves and U waves. He is admitted to the medical admission unit.

How should his electrolyte derangement be managed?

A.Transfer to high care area with cardiac monitoring, central line insertion, 3 bags of 100ml 0.9% Saline with 40mmol KCL per bag over 1 hour

B.3 x 1litre bags of Hartmann's solution over 24 hours.

C.Sando-K 2 tablets, TDS (72mmol/day)

D.Transfer to high care area with cardiac monitoring, 3 x 1litre bags of 0.9% saline with 40mmol KCL per bag over 24 hours.

E.3 x 1litre bags of 0.9% saline with 20mmol KCL per bag over 24 hours

Answer:Transfer to high care area with cardiac monitoring, 3 x 1litre bags of 0.9% saline with 40mmol KCL per bag over 24 hours.

Explanation:

This gentleman has severe hypokalaemia, defined as a serum potassium < 2.5mmol/l. Mild to moderate hypokalaemia can be asymptomatic but the more severe the electrolyte derangement the more likely that symptoms will develop. Symptoms include weakness, leg cramps, palpitations secondary to cardiac arrhythmias and ascending paralysis.

Causes can be secondary to:

1.) Increased potassium loss:

Drugs: thiazides, loop diuretics, laxatives, glucocorticoids, antibiotics

GI losses: diarrhoea, vomiting, ileostomy

Renal causes: dialysis

Endocrine disorders: hyperaldosteronism, Cushing's syndrome

2.) Trans-cellular shift

Insulin/glucose therapy

Salbutamol

Theophylline

Metabolic alkalosis

3.) Decreased potassium intake

4.) Magnesium depletion (associated with increased potassium loss)

ECG changes seen in hypokalaemia include:

U waves

T wave flattening

ST segment changes

Treatment of hypokalaemia depends on severity. Any causative agents should be removed. Gradual replacement of potassium via the oral route is preferred if possible.

Mild to moderate hypokalaemia 2.5 - 3.4 mmol/l can be treated with oral potassium provided the patient is not symptomatic and there are no ECG changes.

Severe hypokalaemia (<2.5mmol/l) or symptomatic hypokalaemia should be managed with IV replacement. The patient should be managed in an area where cardiac monitoring can take place. If there are no contraindications to fluid therapy (e.g. volume overload, heart failure) potassium should be diluted to low concentrations as higher concentrations can be phlebitic. The infusion rate should not exceed 20mmol/hr. In this case, 3 bags of 0.9% Saline with 40mmol KCL is the correct answer.

Question:

You review a 47-year-old woman who was diagnosed with breast cancer two years ago. She has been 'off her legs' since yesterday and cannot walk more than a few steps. What is the most common and early feature of spinal cord compression?

A.Constipation

B.Reduced sensation in the perianal area

C.Back pain

D.Urinary hesitancy

E.Leg weakness

Answer:Back pain

Explanation:

Spinal cord compression - back pain is the earliest and most common symptom

Important for meLess important

Question:

A 38-year-old patient with known peripheral vascular disease presents to the emergency department complaining of pain at rest in his left leg. He is a smoker, however his BMI is 25 kg/m² and he has no other medical history.

On examination, he has absent foot pulses and lower limb pallor.

Critical limb ischaemia is suspected and he undergoes a CT angiogram which reveals a long segmental obstruction.

What is the most appropriate treatment?

A.Angioplasty with stenting

B.Aspirin

C.Balloon angioplasty

D.Below-knee amputation

E.Open bypass graft

Answer:Open bypass graft

Explanation:

Peripheral arterial disease with critical limb ischaemia: low-risk patients with long-segment/multifocal lesions are more suited to open surgical revascularization

Important for meLess important

Open bypass graft is the correct answer. In this case, the fact that the patient has multifocal lesions means that the best option for revascularisation is an open repair. The bypass graft is the largest operation out of all the treatment options. The patient is relatively young and has no notable past medical history means that there is a lower surgical risk.

Angioplasty and stenting is incorrect in this case. This would be a correct option for a patient with focal stenosis or thrombus, however, the multifocal nature of this patient's disease means that he is better suited for open repair.

Aspirin is not correct. In this case, you need to do something to treat the underlying problem. Aspirin would not be enough to revascularise the limb, and surgery is required to remove the obstruction.

Below-knee amputation is incorrect. This could be considered if there was widespread gangrene or ischaemic lesions, in order to achieve source control of the infection and prevent sepsis.

Balloon angioplasty is not correct. This option would be considered, but this patient has multifocal stenosis of the arteries, and so would benefit more from open repair. If the patient was older or had comorbidities that made them unfit for open surgery, an endovascular repair could be considered.

Question:

A 34-year-old female at 24 weeks gestation complains of reduced foetal movements. An ultrasound scan reveals that the foetus is hydropic. Her 4-year-old child recently had a febrile illness and an associated erythematous rash on the face with circumoral pallor. What is the most likely infectious agent?

A.Parvovirus B19

B.Cytomegalovirus

C.Group B Streptococcus

D.Syphilis

E.Rubella

Answer:Parvovirus B19

Explanation:

The clinical features of the child's illness are suggestive of erythema infectiosum which occurs due to parvovirus B19 infection. The majority of pregnant women are immune to parvovirus B19 and infection does not usually cause a problem. Rarely infection in the first trimester has been linked to hydrops fetalis which can result in spontaneous miscarriage.

Question:

A 22-year-old woman who is an immigrant from Malawi presents for review as she thinks she is pregnant. This is confirmed with a positive pregnancy test. She is known to be HIV positive. Which one of the following should NOT be part of the management plan to ensure an optimal outcome?

A.Oral zidovudine for the newborn until 6 weeks of age

B.Maternal antiretroviral therapy

C.Encourage breast feeding

D.Intrapartum zidovudine infusion

E.Elective caesarean section

Answer:Encourage breast feeding

Explanation:

The BHIVA guidelines suggest vaginal delivery may be an option for women on HAART who have an undetectable viral load but whether this will translate into clinical practice remains to be seen

In terms of breastfeeding the BHIVA guidelines state the following:

All mothers known to be HIV positive, regardless of antiretroviral therapy, and infant PEP,

should be advised to exclusively formula feed from birth.

Question:

A 79-year-old man is admitted with a right lower lobe pneumonia. As well as showing consolidation there also appears to be a moderate sized pleural effusion on the same side. An ultrasound guided pleural fluid aspiration is performed. The appearance of the fluid is clear and is sent off for culture. Whilst awaiting the culture results, which one of the following is the most important factor when determining whether a chest tube is placed?

A.Glucose of the pleural fluid

B.LDH of the pleural fluid

C.pH of the pleural fluid

D.Potassium of the pleural fluid

E.Protein of the pleural fluid

Answer:pH of the pleural fluid

Explanation:

The British Thoracic Society (BTS) state that the following are the main indications for placing a chest tube in pleural infection:

Patients with frankly purulent or turbid/cloudy pleural fluid on sampling should receive prompt pleural space chest tube drainage.

The presence of organisms identified by Gram stain and/or culture from a non-purulent pleural fluid sample indicates that pleural infection is established and should lead to prompt chest tube drainage.

Pleural fluid pH < 7.2 in patients with suspected pleural infection indicates a need for chest tube drainage.

pH of the pleural fluid is therefore the most useful test of the options given.

Question:

A 71-year-old man presents with severe pain around his right eye and vomiting. On examination the right eye is red and decreased visual acuity is noted. Which one of the following options is the most appropriate initial management?

A.Topical corticosteroids

B.Arrange outpatient ophthalmology appointment + advise visit to optician to check intraocular pressure

C.Refer immediately to hospital

D.Topical chloramphenicol

E.Topical aciclovir

Answer:Refer immediately to hospital

Explanation:

Acute glaucoma? - admit immediately

Important for meLess important

Question:

A 54-year-old man attends the GP complaining of double vision. He says it is worse when he walks down the stairs.

On inspection, he is sitting with his head tilted towards the right. The left eye deviates supero-laterally.

What cranial nerve is the likely cause of this man’s presentation?

A.Left abducens nerve

B.Left oculomotor nerve

C.Left trochlear nerve

D.Right oculomotor nerve

E.Right trochlear nerve

Answer:Left trochlear nerve

Explanation:

Defective downward gaze and vertical diplopia - CN IV

Important for meLess important

Left trochlear nerve is the correct answer. The trochlear nerve supplies the superior oblique muscle. Palsy of this nerve results in the eye deviating upwards and rotating outwards. This causes vertical diplopia that is worse on the downwards gaze. The patient tilts their head to the contralateral side to help accommodate this deviation. As the patient is tilting their head to the right, the lesion is on the left.

Right abducens nerve is incorrect. This would appear as a medially deviated right eye due to the loss of the lateral rectus.

Left oculomotor nerve is incorrect. A cranial nerve III palsy results in the eye deviating ‘down and out’. This is due to the loss of the medial rectus, but the abducens nerve still innervates the lateral rectus so the eye deviates laterally. The trochlear nerve maintains the superior oblique which pulls the eye down with the loss of the inferior oblique supplied by the oculomotor nerve. This results in the ‘down and out’ position.

Right oculomotor nerve is incorrect. This is explained above.

Right trochlear nerve is incorrect. This is the correct cranial nerve but the wrong side. A patient with a cranial nerve IV palsy (trochlear nerve) has ipsilateral eye signs and a contralateral head tilt.

Question:

A 40-year-old female complains of recurrent pain in her abdomen, radiating into her shoulder. This lasts a few hours, particularly after heavy meals. The pain is associated with nausea and vomiting. She has no chest pain and no shortness of breath. During these episodes she has no fever. On examination, her pulse and respiratory rate are normal.

What is the most likely cause of this presentation?

A.Pulmonary embolism

B.Ascending cholangitis

C.Biliary colic

D.Gastro-oesophageal reflux disease (GORD)

E.Peptic ulcer

Answer:Biliary colic

Explanation:

Biliary colic pain radiates into interscapular region

Important for meLess important

Biliary colic presents with abdominal pain after eating, along with nausea and vomiting. It classically occurs after heavy meals and the pain radiates into the interscapular region. This is referred pain from diaphragmatic irritation. Observations are normally in biliary colic as there is no infection, which differentiates it from ascending cholangitis.

There is no suggestion of pulmonary embolism as the patient has no chest pain or shortness of breath, with stable observations. GORD and peptic ulcers can cause pain and vomiting after eating, but the pain would not radiate to the shoulder.

Question:

A 23-year-old man is brought into the emergency department with nausea and vomiting. He is given metoclopramide by an F1, however 20 minutes later he complains that his eyes are trapped in a strange position, and he is unable to move them.

What has happened to this man?

A.Acute dystonia

B.Akathisia

C.Allergic reaction

D.Parkinsonism

E.Tardive dyskinesia

Answer:Acute dystonia

Explanation:

Metoclopramide can cause extrapyramidal side effects, the earliest of which is mainly acute dystonia

Important for meLess important

Metoclopramide can cause extrapyramidal side effects, most commonly acute dystonia causing oculogyric crises, as is described in the history above. Young people are at particular risk of this. Akathisia is a sense of motor restlessness and is a long term side effect, parkinsonism would be changes in gait and resting tremor, and tardive dyskinesia would be abnormal involuntary movements like licking lips. This is not a typical history of an allergic reaction- there is no swelling of face or lips and no breathing or circulatory problems, and no rash mentioned.

Question:

A 30-year-old female data analyst presents to her local urgent care centre with a 5 day history of right side thumb and wrist pain. She complains of pain down the dorsal aspect of her thumb towards the radial aspect of her wrist which occurs when she is at work and using her computer mouse for extended periods of time. She reports the pain is not present at rest.

On examination, you are able to replicate the pain when she abducts her thumb against resistance. The patient also reports pain when you palpate over her radial styloid process. There is no other sensory or motor deficits in the remainder of your examination. There does not appear to be any erythema or swelling that you note.

What is the likely diagnosis with these findings?

A.Carpal tunnel syndrome

B.Carpometacarpal osteoarthritis

C.De Quervain's tenosynovitis

D.Intercarpal instability

E.Superficial radial neuritis

Answer:De Quervain's tenosynovitis

Explanation:

Pain on the radial side of the wrist/tenderness over the radial styloid process ? De Quervain's tenosynovitis

Important for meLess important

De Quervain's tenosynovitis is caused by inflammation of the extensor pollicis brevis and abductor pollicis longus tendon sheath causing radial styloid process pain and painful abduction of the thumb against resistance.

It is also known colloquially as 'texter's thumb' as repetitive texting motions have been associated with causing this inflammatory response.

Intercarpal instability is an injury where there is loss of the normal alignment between the carpal bones or radioulnar joint. This shift in alignment affects the range of movement which can eventually lead to reduced range of movement, degenerative intercarpal arthritis, and chronic pain. There is no history of trauma which makes this an unlikely diagnosis. This condition also requires radiological evidence for diagnosis and, as such, is an inappropriate answer in this scenario.

Carpal tunnel syndrome is caused by compression of the median nerve that runs through the carpal tunnel which is enclosed by the transverse carpal ligament. Symptoms are typically tingling in the median nerve distribution across the thumb, forefinger and middle finger, weakness, occasional sharp 'electric shock sensations' in this distribution and clumsiness and weakness in these fingers. Symptoms are often worst at night. The classical examination finding is positive Tinel's sign (numbness and tingling occurs when tapping along the median nerve at the wrist).

Carpometacarpal osteoarthritis would likely have pain initially at the base of the thumb and slowly progressing over time to involve other areas of the thumb, fingers and wrist. On examination, there may be evidence of osteoarthritis such as Heberden's nodes.

Superficial radial neuritis (otherwise known as Wartenberg's syndrome) is the entrapment of the superficial branch of the radial nerve and causes pain over the distal radial forearm and paraesthesia over the dorsal radial aspect of the hand. This syndrome can be confused with De Quervain's tenosynovitis however patients with Wartenberg's syndrome tend to have symptoms at rest regardless of the position of the thumb and wrist.

Question:

You are the surgical F1 on call and are bleeped to go and review Mr Jones, a 62-year-old who underwent a right sided total hip replacement 6 hours previously. He has type 2 diabetes mellitus but is otherwise healthy. The nursing staff are concerned as his catheter output has steadily declined and has been 40ml over the last two hours. He has also been drowsy since returning to the ward. The urine is very concentrated but is draining slowly.

Examination reveals: heart rate 131/min, blood pressure 92/71mmHg, temperature 36.8C, BM 8.7 and a central cap refill of 2/3 seconds. His abdomen is soft, non-tender and you see no obvious signs of acute bleeding. He had a spinal anaesthetic during the procedure and is written up for PRN oramorph (5mg 2-4 Hourly). A 1L bag of Hartmann's is running over 8 hours. What is the most appropriate course of action?

A.Flush the catheter

B.Hold the oramorph until the urine output picks up

C.500ml of 5% dextrose fluid challenge

D.500ml 0.9% normal saline fluid challenge

E.Urgent bloods to check renal function

Answer:500ml 0.9% normal saline fluid challenge

Explanation:

The patients symptoms are likely to be caused by hypovolaemia, potentially from intra-operative blood loss or dehydration. Normal saline will provide better intra-vascular filling that dextrose and is therefore more appropriate. The catheter appears to be draining and there is no sign of bladder distension which likely rules out a blocked catheter. Opiates may cause urinary retention, but as there is no bladder distension and a catheter is in situ, this is unlikely to be the cause. Bloods to check renal function are important, but do not provide immediate treatment for the problem and a patients reaction to a fluid challenge is likely to be a quicker means of identifying whether hypovolaemia is to blame. Other factors to have in mind with low blood pressure or tachycardia would include sepsis or the effect of the anaesthetic.

Question:

A 38-year-old woman attends the Emergency Department with central, tearing chest pain that does not radiate. Upon questioning, she reveals she had food poisoning and had been vomiting roughly every hour for the past day. She described the vomit as liquid with no blood.

She is alert, appears thin and has dry mucous membranes. Upon questioning, she has no relevant past medical history or family history, is a non-smoker, drinks 8 units a week and works as a cleaner.

When placing the ECG leads, the doctor notices crepitus over her chest wall. The ECG reveals sinus tachycardia.

What is the most likely cause of her presentation?

A.Aortic dissection

B.Boerhaave's syndrome

C.Mallory-Weiss tear

D.Mediastinitis

E.Myocardial infarction

Answer:Boerhaave's syndrome

Explanation:

Subcutaneous emphysema may be found in Boerhaave's syndrome (oesophageal rupture)

Important for meLess important

Boerhaave's syndrome is very important to consider in the presentation of chest pain, given its high mortality rate. The vomiting history and presence of subcutaneous emphysema makes this the most likely cause. In Boerhaave's syndrome, barotrauma (usually from severe, repeated vomiting) causes a full-thickness tear in the oesophagus. This enables air to travel up the fascial planes in the mediastinum to the subcutaneous tissues, resulting in the characteristic 'rice krispies' crepitus.

Aortic dissection is an important differential in anyone presenting with 'tearing' chest pain. However, this classically radiates to the back and you would expect the patient to have risk factors, such as a connective tissue disorder, a bicuspid aortic valve, vasculitis or trauma. The vomiting history also makes this is less likely.

A Mallory-Weiss tear results from a partial-thickness tear of the oesophagus after repeated vomiting. This would be more likely if the patient's vomit suddenly started to contain blood, but this is not the case from her history. In addition, this would not present with subcutaneous emphysema as the tear is partial thickness.

Mediastinitis is an important complication of Boerhaave's syndrome, occurring from infection of the mediastinum. The patient would be systemically unwell and probably septic.

A myocardial infarction may present with this central chest pain, but is less likely given the vomiting history, her lack of risk factors and the lack of ECG findings, and would also not present with subcutaneous emphysema.

Question:

A 63-year-old woman presents to the emergency department with a sudden onset of central chest pain and profuse sweating. The pain started 6 hours ago and it is now improving. She looks pale and clammy.

Her observations were taken:

Heart rate: 155bpm

Respiratory rate: 19/min

Blood pressure: 127/96 mmHg

Temperature: 35.9 ºC

An ECG is ordered, which shows inverted T waves in V2-3 and a 0.5mm ST depression in the same leads. The troponin levels are normal.

What is the most likely diagnosis?

A.Aortic dissection

B.Ludwig's angina

C.Non-ST elevation myocardial infarction

D.ST elevation myocardial infarction

E.Unstable angina

Answer:Unstable angina

Explanation:

Unstable angina describes patients with ischaemic symptoms suggestive of an ACS and no elevation in troponins, with or without electrocardiogram changes indicative of ischaemia

Important for meLess important

The correct answer is unstable angina. This patient is presenting with chest pain accompanied by deeply inverted T waves in V2-3 and a 0.5mm ST depression in the same leads. These are classical signs of cardiac ischemia, but her troponin levels are normal., even after the 6-hour timeframe. Hence, this cannot be classified as a non-ST or ST-elevation myocardial infarction, as the diagnosis of these two presentations is reached only when the troponin levels are elevated.

Aortic dissection would present with a sharp, tearing pain in the anterior chest or back. The majority of patients have no or non-specific ECG changes. In a minority of patients, ST-segment elevation may be seen in the inferior leads, making this answer incorrect.

Ludwig's angina is not a cardiac condition and it's not associated with chest pain. It is a type of progressive cellulitis that invades the floor of the mouth and soft tissues of the neck.

Non-ST elevation myocardial infarction is a very good differential as it presents with chest pain and ST-segment depression. But it would cause the cardiac enzymes such as troponin to be elevated, making this option incorrect.

ST elevation myocardial infarction needs an ST elevation greater than 1.5 mm in V2-3 in women to be diagnosed and elevated troponin levels. This patient does not have any of the two making this option incorrect.

Question:

A 21-year-old female with a history of cystic fibrosis is admitted to the emergency department with a fever and a productive cough. On examination, she has a respiratory rate of 22 breaths per minute, a pulse rate of 121 beats per minute and saturations of 93% on air. She has coarse crackles at the base of the left lung and generalised patchy wheezing. A chest x-ray is performed which shows the following:

Chest X-ray There is a patchy opacity at the left base with minor blunting of the left costophrenic angle. The trachea is central and the right lung field is broadly clear. Enlarged airways are visible in both lung fields with some fluid levels.

Which of the following organisms is most likely responsible for this patient's clinical condition?

A.Staphylococcus aureus

B.Klebsiella pneumoniae

C.Pseudomonas aeruginosa

D.Haemophilus pneumoniae

E.Legionella pneumophila

Answer:Pseudomonas aeruginosa

Explanation:

Pseudomonas aeruginosa is an important organism causing LRTI in cystic fibrosis patients

Important for meLess important

Patients with cystic fibrosis develop bronchiectasis early on during their life resulting in repeated hospital admissions with lower respiratory tract infections. The pathological process behind bronchiectasis results in sputum pooling within the larger airways with poor removal. Subsequently colonisation occurs with bacteria and occasionally fungi. The most common bacteria is the gram negative rod Pseudomonas aeruginosa and should always be taken into account if providing empirical treatment. If the patient is systemically well then antibiotic sensitivities should be sought from a culture sample before starting treatment. However, an anti-pseudomonal agent such as piperacillin with tazobactam or ciprofloxacin should be used as part of empirical treatment for sepsis in cystic fibrosis patients.

While Staphylococcus aureus is one of the most common pathogens in general, within the cystic fibrosis population it is significantly less common and is more associated with pre-existing influenza infection. Haemophilus pneumoniae is an important pathogen in cystic fibrosis but not as common as Pseudomonas. Haemophilus is also the most common pathogen in patients with chronic obstructive pulmonary disease (COPD). Although Legionella more commonly causes infections in patients with cystic fibrosis than in the general population, it is not as common as Pseudomonas. Infection with Klebsiella is rare and most often associated with malnourished alcoholics rather than cystic fibrosis.

Question:

Gloria is a 49-year-old-woman who is currently peri-menopausal and attends your GP clinic wanting to discuss options for managing her night sweats, hot flushes and mood swings. She has heard about hormone replacement therapy (HRT) and is keen to try this to combat her symptoms. She has a past history of hypothyroidism and a previous deep vein thrombosis (DVT) 10 years ago.

What HRT options would you offer?

A.A transdermal combined patch would be the most appropriate option

B.Oestrogen only HRT pill should be first line in this case

C.HRT is contra-indicated in this scenario

D.A combined contraceptive pill should be used to control symptoms instead

E.Combined HRT oral preparation would be the most appropriate option

Answer:A transdermal combined patch would be the most appropriate option

Explanation:

Transdermal HRT should be used in women at risk of venous thromboembolism

Important for meLess important

In a woman who is peri-menopausal with symptoms requiring control, HRT is generally a good first-line option, if there are no contraindications.

Her history of DVT would not be an absolute contraindication (arterial thromboembolic disease or current/recurrent venous thromboembolic event (VTE) is a contraindication.

Transdermal HRT is deemed generally a safer option in those at risk of VTE compared to oral preparation.

Question:

Jenna is an 18-year-old woman who was initially admitted with a fever and disseminated rash. She had not been previously vaccinated and was in contact with her 2-year-old cousin who had developed a fever and disseminated blisters and vesicles containing clear fluid. She began to have a fever and flu-like symptoms 2 weeks after seeing her cousin. Similar clear-fluid filled vesicles and blisters developed 3 days later and she was admitted for further observation.

After 3 days, she noticed that while most of her skin lesions are healing, one of the lesions on the thigh appears to be red and becoming hot to touch. An area of skin approximately 3x3cm was erythematous. The skin was marked and she was commenced on IV flucloxacillin. Over the coming 12 hours, the erythema around this lesion continued to spread. The pain around her leg increased in intensity, requiring morphine to take the edge off the pain. A blueish discolouration begins to develop around the rash.

Given the likely complication that has developed, what is the likely organism that has caused the complication?

A.Enterococcus faecalis

B.Clostridium perfringens

C.Staphylococcus aureus

D.Streptococcus bovis

E.β- haemolytic Group A Streptococcus

Answer:β- haemolytic Group A Streptococcus

Explanation:

Chickenpox is a risk factor for invasive group A streptococcal soft tissue infections including necrotizing fasciitis

Important for meLess important

The development of fevers along with blisters and vesicles raises the suspicion that this is caused by chickenpox. Besides, this is more likely as she has been exposed to a child who has had similar symptoms. Chickenpox tends to be milder in children but can cause significant morbidity in adults.

The development of a rapidly evolving rash along with significant pains out of proportion to the rash seen should always raise alarm bells for necrotising fasciitis. Blueish discolouration of the skin is also suggestive of this. A surgical review should be sought immediately.

Invasive group A Streptococcus, a β-haemolytic Streptococcus, has been implicated as the cause for necrotizing fasciitis in patients with chickenpox. Extremely broad-spectrum antibiotics are initially used with the choices tailored to bacterial sensitivities when known.

Staphylococcus aureus can also result in necrotising fasciitis but is more commonly associated with patients who have other underlying medical conditions like diabetes.

Enterococcus faecalis does not tend to cause skin infections and are often associated with infections like endocarditis.

Streptococcus bovis is a gamma-haemolytic Streptococcus is most often associated with colorectal cancer associated endocarditis. It is not associated with skin infections.

Clostridium perfringens can cause necrotising fasciitis and presents as gas gangrene. This will present with crepitus under the skin which is not seen here.

Question:

A 5-year-old boy is brought to the surgery by his mother. She is worried about her son who has been unwell the past 2 days with a fever and general malaise. she has also noticed a rash on his face. On examination you note multiple yellow-crusted lesions on his cheeks. His mother comments that these began as small red spots. His temperature is 38.6ºC. All other examinations are normal.

What is the most likely diagnosis?

A.Molloscum contagiosum

B.Eczema

C.Tinea corporis

D.Erysipelas

E.Impetigo

Answer:Impetigo

Explanation:

Impetigo is a reasonable common condition in young children and is very infectious. The classical clinical features are yellow crusted lesions in the affected area (usually around the mouth), that begin as red macules,

Eczema may well occur on the face, but there would not be an accompanying fever in general.

Erysipelas is a bacterial infection of the upper dermis. Patients are usually more unwell with this condition and the rash is typically red, swollen and dimpled.

Molloscum contagiosum is a viral skin infection. There may be an accompanying fever, however the lesions are small well-demarcated papules usually brown or pink in colour.

Tinea corporis is also known as 'ringworm' and is caused by a fungus. Typically the lesions may be single or multiple red, raised, scaly rings.

Question:

You review a 62-year-old man who has recently been discharged from hospital in Hungary following a myocardial infarction. He brings a copy of an echocardiogram report which shows his left ventricular ejection fraction is 38%. On examination his pulse is 78 / min and regular, blood pressure is 124 / 72 mmHg and his chest is clear. His current medications include aspirin, simvastatin and lisinopril. What is the most appropriate next step in terms of his medication

A.Add atenolol

B.Add furosemide

C.Add bisoprolol

D.Add isosorbide mononitrate

E.Make no changes

Answer:Add bisoprolol

Explanation:

Both carvedilol and bisoprolol have been shown to reduce mortality in stable heart failure. The other beta-blockers have no evidence base to support their use.

NICE recommend that all heart failure patients should take both an ACE-inhibitor and a beta-blocker.

Question:

A 9-year-old girl is brought to surgery as her mother is concerned that she is too fat. This has now been a problem for over two years and mum feels this is holding her back at school. What is the most appropriate method to ascertain how obese she is?

A.Body mass index

B.Body mass index percentile adjusted to age and gender

C.Weight plotted on percentile chart

D.Mother's perception

E.Waist circumference

Answer:Body mass index percentile adjusted to age and gender

Explanation:

Question:

A 59-year-old man presents to the GP practice with his wife due to recent changes in his bowel habits. He reports that his stools have become very loose. He also mentions that he is losing some hair and on examination, the doctor notes numerous red rashes on the skin. The man is unable to recall when these rashes first appeared. He is currently taking rifampicin, isoniazid and pyrazinamide for a recent tuberculosis infection. Which of the following conditions is this man suffering from?

A.Pancreatitis

B.Primary biliary cholangitis

C.Paget's disease

D.Psoriasis

E.Pellagra

Answer:Pellagra

Explanation:

Isoniazid, an anti-TB medication, may induce pellagra

Important for meLess important

Four D's of pellagra (vitamin B3 deficiency):

Diarrhoea

Dermatitis

Dementia

Death

The patient in this scenario is displaying signs of the top three D's in the above list. He has reported loose stools, dermatological changes suggestive of dermatitis and also memory loss which points to dementia. The other conditions would not cause these three features together and so pellagra is the most likely condition. Furthermore, this patient is taking isoniazid which is known to induce pellagra.

Question:

You are asked to review a patient with an extensive cardiac history and are asked to present your findings to the consultant. On examination, you find the patient has a loud systolic heart murmur with a palpable thrill. In fact, the murmur is so loud you can hear it with the stethoscope lifted off the chest.

What grade of murmur is being described?

A.Grade 1

B.Grade 2

C.Grade 3

D.Grade 5

E.Grade 6

Answer:Grade 6

Explanation:

Grading of murmur intensity = the Levine scale

Important for meLess important

Murmurs are often described using the Levine grading scale. You will usually see murmurs documented in patient clerking as being a grade between 1-6.

The Levine Scale:

Grade 1 - Very faint murmur, frequently overlooked

Grade 2 - Slight murmur

Grade 3 - Moderate murmur without palpable thrill

Grade 4 - Loud murmur with palpable thrill

Grade 5 - Very loud murmur with extremely palpable thrill. Can be heard with stethoscope edge

Grade 6 - Extremely loud murmur - can be heard without stethoscope touching the chest wall

Question:

A 34-year-old man complains of a sore throat. Which one of the following is not part of the Centor criteria used to assess the likelihood of a bacterial cause?

A.Fever

B.Tender anterior cervical lymphadenopathy

C.Duration > 5 days

D.Absence of cough

E.Presence of tonsillar exudate

Answer:Duration > 5 days

Explanation:

If 3 or more of the 4 Centor criteria are present there is a 40-60% chance the sore throat is caused by Group A beta-haemolytic Streptococcus

Question:

A 30-year-old woman presents to her GP having noticed that her right pupil is larger than the left. She is otherwise well.

Her right pupil has no direct or consensual light reflex. Accommodation is intact, after which the right pupil dilates slowly. Her lower limb reflexes are difficult to elicit.

What diagnosis is consistent with these findings?

A.Argyll Robertson pupil

B.Holmes Adie syndrome

C.Horner's syndrome

D.Posterior communicating artery aneurysm

E.Relative afferent pupillary defect

Answer:Holmes Adie syndrome

Explanation:

Holmes ADIe = DIlated pupil, females, absent leg reflexes

Important for meLess important

This describes Holmes Adie pupil. It is due to loss of parasympathetic innervation. When associated with loss of lower limb reflexes, it is called Holmes Adie syndrome. It is unilateral in 80% of cases. It is usually idiopathic and benign.

Argyll Robertson pupils also have 'near light dissociation' where light reflexes are diminished but accommodation is intact. However, Argyll Robertson pupils are small and often irregular. It is bilateral in 80% of cases. It is classically due to neurosyphilis but can be due to other diseases.

Horner's syndrome causes a small pupil, so here the left pupil reflexes would be abnormal. It also causes ipsilateral partial ptosis and reduced sweating or flushing. It can be due to interruption of the sympathetic pathway at any part.

The parasympathetic fibres run on the outside of the third nerve, so a third nerve palsy with a dilated pupil is due to external compression. The most important cause is posterior communicating artery aneurysm, so this finding is an indication for an immediate CT angiogram. Ischaemic third nerve palsy (such as in diabetes) affects the innermost fibres and spares the pupil. In third nerve palsy, 'big is bad.'

Relative afferent pupillary defect describes an impaired direct light reflex with an intact consensual reflex. Since the efferent limb of the reflexes is the same, the problem must be in the afferent limb. Generally, this is due to an ipsilateral pre-chiasm lesion (retina or optic nerve) but can be due to a contralateral post-chiasm lesion.

Question:

A 23-year-old man is under the care of the cardiology department after a recent admission with palpitations revealed he has Wolff-Parkinson-White syndrome. He does not wish to undergo catheter ablation therapy, instead opting for medical therapy.

The cardiologist decides to start him on amiodarone. He has some baseline investigations and is counselled on the side effects and monitoring requirements of amiodarone.

What investigations must be done six-monthly in this man?

A.ECG and LFT

B.LFT and chest x-ray

C.TFT and ECG

D.TFT and LFT

E.TFT and chest x-ray

Answer:TFT and LFT

Explanation:

Thyroid dysfunction is an important side effect of amiodarone that requires monitoring of thyroid function

Important for meLess important

TFT and LFT is correct. Individuals on amiodarone should have 6-monthly TFTs and LFTs. A common side effect of amiodarone is thyroid dysfunction (it can cause both hyperthyroidism and hypothyroidism), so it is important to monitor thyroid function regularly. Amiodarone can also cause side effects including liver fibrosis and hepatitis, so we also carry out regular (6-monthly) LFTs in individuals on amiodarone. 6-monthly U&Es can be considered. It is also important to do baseline investigations, including TFT, U&E, LFT and a chest x-ray before starting amiodarone treatment.

ECG and LFT is incorrect. LFTs are monitored 6-monthly during amiodarone treatment, however, ECGs are not carried out this regularly. Amiodarone can have cardiac side effects, such as bradycardia and lengthening of the QT interval, and NICE suggests that ECG can be regularly monitored in individuals on amiodarone, however, it recommends every 12 months, not every 6 months.

LFT and chest x-ray is incorrect. LFTs are recommended 6-monthly, but although a chest x-ray is required before treatment, it is not regularly monitored in those taking amiodarone. Pulmonary fibrosis and pneumonitis are recognised complications of amiodarone and therefore, there should be a low threshold for investigating those presenting with pulmonary symptoms/signs of pulmonary toxicity, but x-rays would not be carried out 6-monthly.

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Question:

A 49-year-old office worker complains of colicky loin to groin pain. This occurred insidiously and she describes it as a 10/10 on the pain severity scale. You request imaging which shows a stone in the vesicoureteric junction. You administer the adequate analgesia. Blood work returned showing she had a high serum parathyroid level, which of the following would you expect to find with regards to serum calcium and serum phosphate ions?

A.Calcium raised phosphate raised

B.Calcium raised phosphate low

C.Calcium normal phosphate low

D.Calcium normal phosphate high

E.Calcium normal phosphate normal

Answer:Calcium raised phosphate low

Explanation:

Excess parathyroid hormone results in Excess phosphate Excretion. (The rule of E's)

Important for meLess important

PTH hormone causes increased phosphate ion excretion. As a result, there will be fewer phosphate ions in circulation which would show up as hypophosphataemia. Calcium will be raised.

Phosphate will not be raised as there is a loss of phosphate ions. Rules out option 1.

Calcium would be raised which rules out option 3 and 4 as she has hypercalcemia which caused her renal colic.

She has excess PTH so none of the ions will be in the normal range.

Question:

A 28-year-old woman presents to the clinic complaining of a three-week history of low-grade fever, malaise and cervical lymphadenopathy. She denies any cough, sore throat, and night sweats. She recently visited Rwanda to provide humanitarian aid.

On examination, her temperature is 37.1 ºC. She has a bilateral non-tender lymphadenopathy in the anterior triangle of the neck. Her oropharynx appears normal on examination, and her chest is clear upon auscultation.

You order initial investigations which show:

Hb 126 g/L Female: (115 - 160)

Platelets 366 \* 109/L (150 - 400)

WBC 12.7 \* 109/L (4.0 - 11.0)

CMV IgG Neg -

EBV IgG Neg -

HIV-1/2 Neg -

Toxoplasma IgG Pos -

Bilirubin 12 µmol/L (3 - 17)

ALP 41 u/L (30 - 100)

ALT 54 u/L (3 - 40)

Albumin 46 g/L (35 - 50)

What is the most likely diagnosis?

A.Acute toxoplasmosis

B.Bacterial pharyngitis

C.Non-Hodgkin lymphoma

D.Sarcoidosis

E.Tuberculosis

Answer:Acute toxoplasmosis

Explanation:

Acute toxoplasmosis in the immunocompetent patient can mimic acute EBV infection (low-grade fever, generalised lymphadenopathy with prominent cervical lymph nodes and malaise) and should be suspected with negative EBV serology. Pregnancy testing and counselling is paramount due to the risk of congenital toxoplasmosis

Important for meLess important

Toxoplasmosis infection is usually asymptomatic, but may present with an acute picture of mild pyrexia, lymphadenopathy and malaise mimicking other causes of mononuclear syndromes such as EBV, CMV and HIV-1/2 seroconversion. It is important to diagnose and treat toxoplasmosis in reproductive-age and pregnant women, considering the risks of vertical transmission and congenital toxoplasmosis.

Acute toxoplasmosis may cause a slight lymphocytosis, along with a moderate raise in CRP and hepatic transaminases. Diagnosis may be achieved via serologic testing for antibodies; IgM titres increase within one week of symptoms, followed by IgG antibodies after approximately two weeks.

Bacterial pharyngitis is unlikely given no complaints of sore throat and normal examination findings, however this could also present with cervical lymphadenopathy.

Excluding a malignant aetiology of lymphadenopathy is of pivotal importance. More than 75% initial presentations of Non-Hodgkin lymphoma involve lymphadenopathy. Unlike in this scenario, this is commonly accompanied by systemic 'B' symptoms- pyrexia, weight loss and night sweats. Other associated signs and symptoms may be variable, dependent on histological subtype and anatomical involvement. A FBC characteristically shows pancytopoenia but lymphocytosis may also be present. Unexplained, persistent lymphadenopathy accompanied by 'B' symptoms or abnormal blood tests should be referred to haematology under the 2-week-wait rule.

Peripheral lymphadenopathy is also present in circa 40% of patients with sarcoidosis. In sarcoidosis, this would be typically accompanied by respiratory symptoms such as cough, chest pain and shortness of breath, and systemic symptoms of fatigue, malaise, pyrexia, and weight loss.

Tuberculosis may also present with lymphadenopathy, however this usually has a more indolent course and presents as a unilateral non-tender mass. A previous history of tuberculosis or contacts, along with known immunodeficiency would make this diagnosis more likely.

Question:

A 17-year-old man is referred to the local nephrology unit for investigation. He reports having several episodes of visible haematuria. There is no history of abdominal or loin pain. These typically seem to occur within a day or two of developing an upper respiratory tract infection. Urine dipstick is normal. Blood tests show the following:

Na+ 141 mmol/l

K+ 4.3 mmol/l

Bicarbonate 25 mmol/l

Urea 4.1 mmol/l

Creatinine 72 µmol/l

What is the most likely diagnosis?

A.Chlamydia

B.Bladder cancer

C.IgA nephropathy

D.Rhinovirus-associated nephropathy

E.Post-streptococcal glomerulonephritis

Answer:IgA nephropathy

Explanation:

Question:

A 12-year-old female from Bulgaria presents to the surgery. She reports being unwell for the past 2 weeks. Initially she had a sore throat but she is now experiencing joint pains intermittently in her knees, hips and ankles. On examination there are some pink, ring shaped lesions on the trunk and occasional jerking movements of the face and hands. What is the most likely diagnosis?

A.Lyme disease

B.Infective endocarditis

C.Polyarticular juvenile idiopathic arthritis

D.Rheumatic fever

E.Still's disease

Answer:Rheumatic fever

Explanation:

Question:

A 39-year-old woman presents to her general practitioner with what she describes as 'Pre-menstrual syndrome'. She describes severe pain that occurs 3-4 days before the start of her period each month which stops her from being able to go to work. She has a regular 29-day cycle which has only started being painful in the past year. She is nulliparous and uses the progesterone-only pill for contraception.

What is the most appropriate management of this patient?

A.Refer to gynaecology

B.Trial of combined oral contraceptive pill

C.Trial of fluoxetine

D.Trial of intra-uterine device

E.Trial of tranexamic acid

Answer:Refer to gynaecology

Explanation:

All patients with secondary dysmenorrhoea need to be referred to gynaecology for investigation

Important for meLess important

This patient has secondary dysmenorrhoea as her pain precedes the first day of her menstrual cycle. Secondary dysmenorrhoea is associated with pathologies such as pelvic inflammatory disease, endometriosis, adenomyosis, and fibroids. As it is pathological, it must be investigated further with a referral to gynaecology.

The combined oral contraceptive pill may improve her symptoms, depending on the cause, however, it is important that she is investigated first.

Fluoxetine is a selective-serotonin inhibitor that can be prescribed in premenstrual dysphoric disorder (a combination of affective, somatic, and behavioural symptoms which affects women during the luteal phase of their menstrual cycle). It is not appropriate in the management of secondary dysmenorrhoea.

Intra-uterine devices can cause secondary dysmenorrhoea and would not be appropriate.

Tranexamic acid is used in the management of menorrhagia, not secondary dysmenorrhoea.

Question:

A 33-year-old primigravida attends an antenatal appointment at 9 weeks gestation. She had a private ultrasound a week ago showing dichorionic, diamniotic twins. She has a past medical history of hypothyroidism for which she takes levothyroxine, and has a BMI of 38 kg/m². Although she admits to smoking during her pregnancy, she cut down from 20 to 5 cigarettes/day and is keen to try nicotine replacement therapy. While her pregnancy has been uncomplicated so far, she is concerned as her mother and sister both developed hyperemesis gravidarum.

What factor in this patient's history is associated with a decreased incidence of developing the same condition as her relatives?

A.Hypothyroidism

B.Obesity

C.Primigravida

D.Smoking

E.Twin pregnancy

Answer:Smoking

Explanation:

Smoking is associated with a decreased incidence of hyperemesis gravidarum

Important for meLess important

Hyperemesis gravidarum is believed to occur due to rapidly rising levels of human chorionic gonadotropin (HCG) and oestrogen. Any condition which increases these hormone levels (or is associated with higher hormone levels) will lead to an increased risk of hyperemesis. Smoking is considered to be anti-oestrogenic and has been found to decrease the risk of hyperemesis gravidarum. As this patient is a smoker, this may decrease her incidence of hyperemesis gravidarum despite having other risk factors.

Hypothyroidism is not a risk factor - however, hyperthyroidism increases the risk of a patient having hyperemesis gravidarum. This may be due to hCG and TSH receptor antibodies stimulating the thyroid TSH receptor causing a flare of the symptoms of hyperthyroidism - vomiting.

Obesity (and underweight) is associated with an increased risk of hyperemesis. However, women with obesity or underweight who smoked pre-pregnancy have been found to have no increased risk of hyperemesis.

Primigravida status is associated with an increased risk of hyperemesis - this may be due to the body experiencing high beta-hCG for the first time however there is no clear evidence as to why this occurs.

Twin pregnancies are associated with higher levels of beta-hCG released from the placenta - as such, these carry an increased risk of hyperemesis gravidarum.

Question:

A 23-year-old woman presents to her GP with cramping lower abdominal pain, not responding to analgesia. She has no past medical history of note. As part of the workup, her GP performs a pregnancy test which is positive.

She is referred urgently to the hospital, where she undergoes a transvaginal ultrasound. This confirms an extra-uterine pregnancy in the right tube.

What is the most appropriate management?

A.Methotrexate

B.Monitor for 48 hours

C.Salpingectomy

D.Salpingotomy

E.Vaginal misoprostol

Answer:Salpingectomy

Explanation:

Ectopic pregnancy requiring surgical management: salpingectomy is first-line (rather than salpingotomy) for women with no other risk factors for infertility

Important for meLess important

This woman has a right-sided ectopic pregnancy. Given that she has presented with abdominal pain, the ectopic pregnancy requires surgical management. Since she has no past medical history, especially any factors affecting fertility, it is more appropriate for her to undergo a salpingectomy. Removal of the tube has an overall better success rate, and only decreases total fertility by about a quarter.

Methotrexate is incorrect. This drug is useful in the medical management of ectopic pregnancies. However, this is not appropriate here given that the ectopic pregnancy is symptomatic.

Monitoring for 48 hours is incorrect. Expectant management can only be used in a few cases, and the patient cannot be symptomatic. Since this patient is symptomatic, monitoring for 48 hours without intervention is inappropriate.

Salpingotomy is incorrect. Whilst this is also an option for surgical management, it has about a 20% chance of failing and requiring further treatment with either methotrexate or a salpingectomy. If the patient has no factors affecting the fertility of their contralateral tube, then complete removal of the tube is more appropriate.

Vaginal misoprostol is incorrect. This is not used in the management of ectopic pregnancies. It is actually used in the protocols for termination of pregnancy or medical management of miscarriage.

Question:

A 26-year-old newly qualified nurse presents as she has developed a bilateral erythematous rash on both hands. She has recently emigrated from the Philippines and has no past medical history of note. A diagnosis of contact dermatitis is suspected. What is the most suitable to test to identify the underlying cause?

A.Radioallergosorbent test (RAST)

B.Latex IgM levels

C.Skin prick test

D.Urinary porphyrins

E.Skin patch test

Answer:Skin patch test

Explanation:

The skin patch test is useful in this situation as it may also identify for irritants, not just allergens.

Question:

A 49-year-old woman is admitted to hospital with abdominal pain. She has some routine bloods taken by the emergency department and the HbA1c result is shown below:

HbA1c 31 mmol/mol (27-48 mmol/mol)

Which of the following medical conditions would mean this result would under-estimate her blood sugar levels?

A.Iron deficiency anaemia

B.Megaloblastic anaemia

C.Hereditary spherocytosis

D.Previous splenectomy

E.Folic acid deficiency

Answer:Hereditary spherocytosis

Explanation:

HbA1c UNDERestimates glucose levels in hereditary spherocytosis

Important for meLess important

Measuring HbA1c levels is becoming the most common test for diabetes as it provides an average blood glucose level over a period of time of about 3 months. This corresponds to the life span of a normal red blood cell. The two things that can result in a lower HbA1c reading are a lower average blood glucose concentration and a shorter red cell life span. Therefore, the only condition here which would result in the HbA1c being an under-estimate of blood sugar would be hereditary spherocytosis as this would reduce the red blood cell life span. All the other conditions would increase their life span and consequently increase the HbA1c.

Question:

You are an F1 doctor who has just started working on a paediatric ward. During the ward round, you see an 8-year-old boy with his parents, he suffers from West syndrome and has been involved in a research trial which involves regular EEG recordings. Although his parents have consented to him being involved in the trial, the boy interrupts saying he hates the 'horrible head stickers' and becomes visibly distressed when the trial is mentioned. What is the most appropriate course of action?

A.Raise your concerns with your consultant about the child's obvious objections in being involved with the trial

B.The patient should stay in the trial as his parents have consented on his behalf

C.Remove the child from the trial immediately

D.Report your concerns over the child's participation in trial to the GMC

E.Explore with the parents their understanding of the benefits and risks associated with the trial

Answer:Raise your concerns with your consultant about the child's obvious objections in being involved with the trial

Explanation:

Option one is correct. Ignoring your concerns over the patient's involvement in the trial is unprofessional. It would be an overreaction to remove the child from the trial, especially as an F1 doctor, as it would be to contact the GMC before consulting a senior colleague about your concerns. Exploring the parents' understanding of the trial would be a good idea, however, as an F1 doctor, it would perhaps be more appropriate to approach your consultant first who will likely have more knowledge of the trial and research they are conducting. The GMC guidance below also states that 'Children and young people should not usually be involved in research if they object or appear to object in either words or actions, even if their parents consent.'

GMC Explanatory Guidance - 0-18 years: guidance for all doctors

http://www.gmc-uk.org/guidance/ethicalguidance/childrenguidanceindex.asp

Question:

A 31-year-old female presents 5 weeks postpartum. She asks about methods of contraception that would be safe for her baby as she is exclusively breastfeeding. Which of these methods of contraception would not be recommended for this patient?

A.Mirena intrauterine system

B.Copper IUD

C.Progestogen only pill

D.Combined oral contraceptive pill

E.Progestogen only implant

Answer:Combined oral contraceptive pill

Explanation:

According to the UK Medical Eligibility Criteria for Contraceptive Use, the combined oral contraceptive pill is absolutely contraindicated in women who are breastfeeding and less than 6 weeks postpartum. This is because combined hormonal contraceptives reduce breast milk volume. Between 6 weeks and 6 months postpartum, they are classed as UKMEC 2. Remember that lactational amenorrhoea is effective contraceptive in itself, provided the woman is exclusively breastfeeding i.e. no bottle feeds are being given in addition to breast milk.

The Mirena intrauterine system and copper IUD can be used from 4 weeks postpartum. The POP can be started on or after day 21 postpartum. The progestogen only implant can be inserted at any time, although contraception is not required before day 21 postpartum.

For more information see the excellent NICE Clinical Knowledge Summary on contraception (Scenario: Comorbidities and special situations): http://cks.nice.org.uk/contraception-assessment#!scenario:1

You may also wish to look at the UK Medical Eligibility Criteria for Contraceptive Use:

http://www.fsrh.org/pdfs/UKMEC2009.pdf

Question:

A 3-year-old boy comes to see you with his parents. He has a six month history of chronic diarrhoea with five to seven loose stools per day. His parents describe the stools as looking as though they contain 'carrots, peas and sweet corn' and generally what sounds like undigested food from previous meals.

He is growing well and has remained stable on the 75th percentile on the growth chart for weight, height and head circumference. Other than the diarrhoea he has had no other symptoms or abdominal pain and examination is normal.

What is the most likely diagnosis from the list below?

A.Coeliac disease

B.Hirschsprung's disease

C.Lactose intolerance

D.Crohn's disease

E.Toddlers diarrhoea

Answer:Toddlers diarrhoea

Explanation:

Stools containing 'carrots and peas' and undigested food in a toddler will generally point towards toddlers diarrhoea or 'chronic nonspecific diarrhoea' in exams.

Toddlers diarrhoea should remit as a child grows up, is generally in those aged between 1 and 5-years-old and is more common in boys.

It is thought that diet is often a contributor. Diarrhoea will often remit if the child is given a good level of fat, less fruit juices or squash and receives a healthy amount of fibre in their diet.

Children with this condition must be healthy, untroubled by the diarrhoea and growing normally. If there are any abnormalities in the child's general health it is important to investigate other possible causes.

Question:

One of your patients who has a family history of Marfan's syndrome has recently been diagnosed with the condition. What is the most important investigation to monitor their condition?

A.Urea and electrolytes

B.Echocardiography

C.Spirometry

D.Electrocardiogram

E.DEXA scan

Answer:Echocardiography

Explanation:

Marfan's syndrome is associated with dilation of the aortic sinuses which may predispose to aortic dissection

Important for meLess important

Question:

A 14-year-old girl is referred to the paediatric unit with reduced urine output and lethargy. She has been passing bloody diarrhoea for the past four days. On admission she appears dehydrated. Bloods show the following:

Na+ 142 mmol/l

K+ 4.8 mmol/l

Bicarbonate 22 mmol/l

Urea 10.1 mmol/l

Creatinine 176 µmol/l

Hb 10.4 g/dl

MCV 90 fl

Plt 91 \* 109/l

WBC 14.4 \* 109/l

Given the likely diagnosis, which one of the following organisms is the most likely cause?

A.Campylobacter

B.Giardiasis

C.E. coli

D.Salmonella

E.Shigella

Answer:E. coli

Explanation:

Haemolytic uraemic syndrome - classically caused by E coli 0157:H7

Important for meLess important

The combination of renal impairment and bloody diarrhoea in a child point to a diagnosis of haemolytic uraemic syndrome.

Question:

Which one of the following antibiotics is most likely to cause pseudomembranous colitis?

A.Erythromycin

B.Trimethoprim

C.Penicillin V

D.Doxycycline

E.Cefaclor

Answer:Cefaclor

Explanation:

Cephalosporins, not just clindamycin, are strongly linked to C.difficile

Important for meLess important

Question:

Which one of the following is not a risk factor for primary open-angle glaucoma?

A.Diabetes mellitus

B.Family history

C.Hypertension

D.Afro-Caribbean ethnicity

E.Hypermetropia

Answer:Hypermetropia

Explanation:

Acute angle closure glaucoma is associated with hypermetropia, where as primary open-angle glaucoma is associated with myopia

Important for meLess important

Question:

A 65-year-old man presents to his GP due to a longstanding history of chronic cough that is productive of large volumes of thick yellow sputum. Over the last year, he has also noted increasing exertional breathlessness.

On auscultation of the chest, there are scattered coarse crackles and high-pitched inspiratory squeaks. Clubbing of the fingers is also noted.

The patient has no medical history beyond childhood measles and an appendicectomy. He has smoked 20 cigarettes a day for the last 20 years and is retired, having previously worked in construction at a dockyard.

What is the likely diagnosis?

A.Asbestosis

B.Bronchiectasis

C.Chronic obstructive pulmonary disease

D.Idiopathic pulmonary fibrosis

E.Lung cancer

Answer:Bronchiectasis

Explanation:

Clubbing may be present in patients with bronchiectasis

Important for meLess important

Bronchiectasis is the correct answer. This patient has typical symptoms of bronchiectasis, which are persistent cough with daily sputum production and exertional breathlessness. Although not present in this patient, many patients with bronchiectasis will also have recurrent episodes of fever. The most common cause is a previous severe lower respiratory tract infection, which can include viral infections such as measles. The auscultation findings of coarse crackles and high-pitched inspiratory squeaks are typical of bronchiectasis. This patient also has clubbing which, although uncommon, may be another finding in patients with bronchiectasis.

Asbestosis is incorrect. Although this patient had an occupation that put him at risk of asbestos contact, asbestosis is a fibrotic lung condition that presents with prominent exertional dyspnoea. A cough will develop as the disease progresses. However, this is usually a dry cough. Clubbing can also be found in patients with asbestosis. However, examination of the chest will reveal inspiratory crackles rather than widespread coarse crackles and inspiratory squeaks.

Chronic obstructive pulmonary disease (COPD) is incorrect. Although an important differential of chronic productive cough and exertional breathlessness in a smoker, COPD does not cause the above examination findings. Clubbing is not typical with COPD and should prompt suspicion of underlying bronchiectasis or lung cancer. The auscultation in COPD may be normal or may reveal wheeze or diminished breath sounds. Furthermore, COPD is not associated with childhood respiratory infections and does not result in daily large volumes of purulent sputum.

Idiopathic pulmonary fibrosis is incorrect. Although it is more common in male smokers such as this patient and can cause finger clubbing, the most prominent symptom is usually dyspnoea rather than a cough. Furthermore, the cough of idiopathic pulmonary fibrosis tends to be dry. Finally, idiopathic pulmonary fibrosis is associated with fine, not coarse, crackles on auscultation.

Lung cancer is incorrect. Whilst always a differential of new cough and breathlessness in a smoker with clubbing, lung cancer is not associated with the production of large volumes of purulent sputum. It is also not associated with the auscultation findings seen in this patient. Patients with lung cancer are likely to have additional symptoms such as weight loss, anorexia, chest pain and haemoptysis that are not seen in this patient.

Question:

A 45-year-old man presents to his GP with pain in the lateral aspect of his right elbow. He has recently started a new job as a painter-decorator, and the pain has started to affect his work, as he is right-handed. Upon examination, his pain is worse on wrist extension against resistance with his elbow extended.

Given the most likely diagnosis, what other movement would you expect to cause pain upon examination?

A.Abduction of the arm between 170-180°

B.Abduction of the arm between 60-120°

C.Abduction of the fingers

D.Pronation of the wrist

E.Supination of the wrist

Answer:Supination of the wrist

Explanation:

Lateral epicondylitis: worse on resisted wrist extension/suppination whilst elbow extended

Important for meLess important

The most likely diagnosis in this patient is lateral epicondylitis (tennis elbow), resulting from repetitive elbow extension due to his new job. Lateral epicondylitis causes pain during supination of the wrist with the elbow extended. This is because the muscles of extension insert at the lateral epicondyle and supinator inserts at the lateral proximal radial shaft, causing pain in this area following repetitive movement.

Abduction of the arm between 170-180° is incorrect because this is performed by the upper trapezius and not the extensor muscles and supinator. Pain in this range of motion corresponds to the acromioclavicular painful arc and is not associated with lateral epicondylitis.

Abduction of the arm between 60-120° is performed by the deltoid muscle and not by the extensor muscles or supinator. Pain in this range of motion corresponds to the glenohumeral painful arc and is not associated with lateral epicondylitis.

Abduction of the fingers is performed by the dorsal interossei muscles and not by the extensor muscles or the supinator. Therefore it does not cause pain in lateral epicondylitis.

Pronation of the wrist is performed by the biceps brachii and the pronator muscles. The pronator muscles insert on the medial epicondyle, and pronation during elbow extension causes pain in medial epicondylitis (golfer's elbow). This answer is therefore incorrect.

Question:

A 33-year-old woman with a history of sarcoidosis presents to the chest clinic for a check-up appointment. Her condition is currently being managed with ibuprofen however in the past two weeks she has been experiencing some headaches and burning sensation in her eyes. What is the most appropriate next step in her treatment?

A.Increase the dose of ibuprofen

B.Admit to hospital and administer IV methylprednisolone

C.Prescribe oral prednisolone

D.Prescribe methotrexate

E.Prescribe combination NSAID therapy

Answer:Prescribe oral prednisolone

Explanation:

Indications for corticosteroid treatment for sarcoidosis are: parenchymal lung disease, uveitis, hypercalcaemia and neurological or cardiac involvement

Important for meLess important

This patient has a past history of sarcoidosis and has recently started experiencing symptoms suggestive of uveitis. This warrants the initiation of steroid therapy.

Question:

A 13-year-old boy comes into the Emergency Department with his parents, as he has had left-sided hip pain for the last few days. X-rays show a slipped upper femoral epiphysis (SUFE). What is the definitive management of this condition?

A.Physiotherapy

B.Two weeks of bed rest

C.Internal fixation across the growth plate

D.Ponseti method

E.Pavlik harness

Answer:Internal fixation across the growth plate

Explanation:

Management of a SCFE: internal fixation

Important for meLess important

A slipped upper femoral epiphysis is an emergency, as there is a risk of avascular necrosis of the femoral head. It therefore mandates immediate referral to paediatric orthopaedics. In the meantime, the child should not weight bear and should be made comfortable with analgesia. The ultimate management is surgical, in the form of internal fixation. This prevents the slip from worsening.

The Ponseti method is a process of serial manipulation and casting over a few weeks used to treat clubfoot. A Pavlik harness is the treatment of choice for developmental dysplasia of the hip.

https://patient.info/doctor/slipped-capital-femoral-epiphysis-pro

Question:

A 60-year-old suffers a trauma and burn injury and is due to undergo an emergency surgery. His urea and electrolytes are shown below:

Na+ 131 mmol/l

K+ 5.9 mmol/l

Urea 8.1 mmol/l

Creatinine 78 µmol/l

He is being prepared for anaesthesia.

Which of the following neuromuscular blockers is contraindicated in this patient?

A.Atracurium

B.Vecuronium

C.Suxamethonium (succinylcholine)

D.Rocuronium

E.Pancuronium

Answer:Suxamethonium (succinylcholine)

Explanation:

Succinylcholine (suxamethonium) can cause hyperkalemia

Important for meLess important

Depolarising neuromuscular blockers (e.g. suxamethonium) increase the risk of hyperkalaemia in burns/trauma patients and therefore are contraindicated.

Other neuromuscular blockers in the question are non-depolarising and do not increase the risk of hyperkalaemia.

Question:

A 35-year-old man is investigated for lethargy, arthralgia and deranged liver function tests. He is eventually diagnosed as having hereditary hemochromatosis. His wife has a genetic test which shows she is not a carrier of the disease. What is the chance his child will develop haemochromatosis?

A.0%

B.25%

C.50% if female, 0% if male

D.50% if male, 0% if female

E.50%

Answer:0%

Explanation:

Haemochromatosis is autosomal recessive

Important for meLess important

Haemochromatosis is an autosomal recessive condition. If one of the parents has haemochromatosis (i.e. is homozygous) and the other is not a carrier/affected then all the children will inherit one copy of the gene from the affected parent and hence will be carriers.

Question:

A 22-year-old man who is currently living in student accommodation is brought in by ambulance. His flatmates returned from lectures and found him slumped over a chair with features of dizziness, headache and a reduced conscious level. He lives in student accommodation and his flatmates reveal there have had problems with the boiler but the landlord has not sorted these out. He denies any illicit drug use or relevant past medical or surgical history. The paramedics arrived and found him lying on the floor with cyanosis of his skin.

Examination findings:

Oxygen saturations on room air are 97%

Blood pressure is 122/78 mmHg

Heart rate 85 bpm

Respiratory rate 17 breaths per minute

Temperature 37.0 C

Heart sounds normal with no added sounds

Chest clear with no added sounds and vesicular in nature

pH 7.36

pO2 8.4 kPa

pCO2 5.7 kPa

Bicarbonate 25 mmol/l

Given the likely diagnosis, what is the most appropriate target oxygen saturations to aim for?

A.94-98%

B.88-92%

C.80-90%

D.85-90%

E.100%

Answer:100%

Explanation:

Target oxygen saturations in carbon monoxide poisoning = 100%

Important for meLess important

Carbon monoxide: a discrepancy between normal peripheral oxygen saturations (97%) and a low pO2 (hypoxia)

Because oxyhaemoglobin and carboxyhaemoglobin have a similar affinity for haemoglobin, the oxygen saturations are falsely high

The treatment involves removing the person from the toxic environment and administering 100% oxygen which reduces the half life of carboxyhaemoglobin from 6 hours to 1 hour

The target oxygen saturations due to being falsely elevated therefore are targeted at 100% according to BTS Guidelines

Usually 94-98% would be target saturations in a non-COPD patient but due to the falsely elevated oxygen saturations we aim for a higher saturation than 94-98% therefore the other options are incorrect.

Reference:

Question:

Thomas is a 44-year-old man who comes to see you as his older brother Robert has been recently diagnosed with hereditary haemochromatosis. He is worried that he may also have the condition and would like to have a blood test to find out.

In the first instance, you request an iron study profile including transferrin saturation, ferritin and total iron binding capacity (TIBC).

Which of the following blood test results is most likely to indicate that Thomas has the same condition as Robert?

A.Low transferrin saturation, low ferritin, low TIBC

B.Low transferrin saturation, raised ferritin, raised TIBC

C.Raised transferrin saturation, low ferritin, low TIBC

D.Raised transferrin saturation, raised ferritin, low TIBC

E.Raised transferrin saturation, raised ferritin, raised TIBC

Answer:Raised transferrin saturation, raised ferritin, low TIBC

Explanation:

Raised transferrin saturation and ferritin, with low TIBC is the characteristic iron study profile in haemochromatosis

Important for meLess important

Hereditary haemochromatosis is an autosomal recessive disorder. Siblings of patients with hereditary haemochromatosis should undergo screening, since they have a 25% chance of being susceptible. Serum ferritin and transferrin saturation should be assessed. HFE mutation analysis should be encouraged after appropriate genetic counselling.

Characteristically in haemochromatosis, transferrin saturation and ferritin are raised and TIBC is low.

Serum ferritin is a very sensitive test for iron overload in haemochromatosis and normal serum concentrations essentially rule out iron overload. However, ferritin has low specificity, as elevated values can be the result of a range of conditions such as diabetes mellitus, alcohol consumption and hepatocellular necrosis.

Question:

Whilst at a restaurant you notice a middle-aged man starting to cough and splutter. You go over to him and ask him if he is choking. He responds that he thinks it was a bit of steak 'going down the wrong way'. What is the most appropriate first-step?

A.Call for an ambulance

B.Give up to 5 abdominal thrusts

C.Encourage him to cough

D.Give up to 5 back-blows

E.Take any loose fitting dentures out

Answer:Encourage him to cough

Explanation:

Question:

A 55-year-old woman presents to the emergency department with sudden-onset shortness of breath. She has a past medical history of hypertension and types 2 diabetes mellitus. She has recently returned from a trip to Sri Lanka.

These are her observations:

Heart rate 110bpm

Resp. rate 24/min

Blood pressure 138/88mmHg

Capillary refill time <2 sec

Temperature 36.9ºC

On assessment, her left leg appears swollen and there is associated calf tenderness.

Her ECG shows sinus tachycardia and her chest X-ray is normal.

Based on her Well's score, what is the next best step in this patient's management?

A.CT pulmonary angiogram (CTPA)

B.Commence anticoagulation therapy

C.Commencing thrombolytic therapy

D.D-dimer

E.USS doppler of the affected leg

Answer:CT pulmonary angiogram (CTPA)

Explanation:

CT pulmonary angiogram (CTPA) is the correct answer. Based on the information provided, we can calculate her 2-level PE Well's score to be at least 4.5 (heart rate>100 + evidence of DVT). An alternative diagnosis is also less likely as the ECG and chest X-ray is largely unremarkable. Because she has a Well's score >4, the next best step in her management would be to perform a CTPA immediately, to diagnose a potential pulmonary embolism (PE).

Commencing anticoagulation therapy is incorrect. This may be considered if the CTPA is delayed and interim anticoagulation is required. Anticoagulation is the mainstay of treatment in the management of PE. However, the next best immediate step would be to arrange a CTPA. There is no indication that there would be a delay in management and therefore anticoagulation is not currently indicated.

Commencing thrombolytic therapy is incorrect. It is yet to be proven whether this patient has a PE. Inappropriately starting patients on this drug exposes them to unnecessary side effects and increases their risk of bleeding.

Performing a D-dimer is incorrect. It would be appropriate if the patient had a PE Well's score less than or equal to 4. As this patient has a score of 4.5, the recommended guidance is to perform a CTPA. This ensures that a diagnosis of PE is not delayed and appropriate treatment can be commenced. A D-dimer can also be raised for a variety of reasons and is only useful to rule out a PE when negative.

Performing a USS doppler of the affected leg is incorrect. It is not entirely inappropriate for this patient as they do have features suggestive of a DVT. However, a USS doppler of the leg is not a priority as this patient has a PE Well's score of over 4. This warrants a CTPA as diagnosing a PE is of a higher priority due to its life-threatening nature. In the event the CTPA is negative, a USS doppler may be considered to rule out a possible DVT.

Question:

A 45-year-old woman presents to the emergency department feeling sweaty, confused and agitated over the last hour. The patient has a 10-year history of schizophrenia, hay fever, and lower back pain and takes sertraline, cetirizine, and olanzapine. She admits to occasional recreational use of cannabis and diazepam and uses her partner's tramadol.

Her temperature is 39.0ºC, her heart rate is 105 bpm, and her blood pressure is 143/75 mmHg. An examination reveals hyperreflexia, rigidity, bilateral mydriasis, and bilateral ankle clonus.

What is the most likely underlying cause of her presentation?

A.Cannabis use

B.Cetirizine use

C.Diazepam use

D.Olanzapine use

E.Tramadol use

Answer:Tramadol use

Explanation:

Tramadol co-prescribed with SSRIs is a common cause of serotonin syndrome

Important for meLess important

The patient in the vignette has features of serotonin syndrome (neuromuscular excitation (hyperreflexia, rigidity, myoclonus, mydriasis), fever, agitation, and confusion).

Tramadol use is the correct answer. Tramadol exerts its analgesic effect with partial mu-opioid agonist activity that also inhibits the reuptake of serotonin and noradrenaline in the brain. Tramadol use, alongside sertraline (a selective serotonin reuptake inhibitor, SSRI), can lead to excess and dangerous amounts of serotonin within synapses, leading to serotonin syndrome.

Cetirizine use is incorrect. Cetirizine does not cross the blood-brain barrier in significant amounts or have a significant effect on serotonergic transmission. Even if it were to act on serotonin receptors, it is an antagonist and would reduce its effects, making serotonin syndrome less likely.

Cannabis use is incorrect. Cannabis use is not associated with serotonin syndrome. Excessive cannabis smoking can cause nausea, vomiting, paranoia, hallucinations, poor coordination, and confusion, but does not lead to significant neuromuscular excitation causing the signs and symptoms seen in this patient.

Diazepam use is incorrect. Diazepam does not significantly affect serotonergic transmission and is a sedative, which may cause drowsiness and neuromuscular relaxation; however, it is not associated with hyperreflexia and mydriasis.

Olanzapine use is incorrect. Olanzapine is a dopamine and serotonin antagonist, which reduces serotonergic transmission, making serotonin syndrome less likely. Although antipsychotics are associated with the development of neuroleptic malignant syndrome (NMS), this is typically seen in younger patients within hours-days after starting an antipsychotic and is associated with decreased reflexes and normal pupils. The patient in the vignetter has hyperreflexia and dilated pupils. The patient in the vignette has a 10-year history of schizophrenia and is likely to have taken antipsychotics for a long time, making NMS more unlikely.

Question:

A 38-year-old man presents to his GP with a red eye. The patient reports that he woke up with a watery, red eye. Upon examination, there is no pain upon eye movements and his visual acuity is 6/6 in each eye.

His eye can be seen in the image below.

What is the most likely diagnosis?

A.Acute angle closure glaucoma

B.Conjunctivitis

C.Episcleritis

D.Scleritis

E.Subconjunctival haemorrhage

Answer:Episcleritis

Explanation:

Episcleritis is the correct answer. The image shows segmented areas of redness and dilated episcleral vessels. Episcleritis is a self-limiting non-infective inflammation of the episclera, a layer situated underneath the conjunctiva. It presents with a painless segmented, rather than diffuse, eye redness. The vessels of the episclera are inflamed and dilated as seen in the image. The key to distinguishing the causes of a painless red eye, is the actual appearance. While episcleritis looks like a segmented area is red, subconjunctival haemorrhage will look diffusely red and conjunctivitis will have other features like discharge and itchiness. The management of these patients is conservative as the redness should resolve in a few weeks.

Acute angle closure glaucoma is incorrect. This is one of the options that would present with a painful red eye. The acute angle closure prevents the aqueous humour to exit the anterior chamber, causing raised intraocular pressure. This would be an extremely painful red eye, with blurred vision and reduced visual acuity, which is not the case here.

Conjunctivitis is incorrect. This would present with a painless red itchy eye with discharge. Depending on the cause, there would be clear discharge in viral conjunctivitis and more purulent discharge in bacterial conjunctivitis. As with episcleritis, visual acuity should not be affected.

Scleritis is incorrect. This is more serious than episcleritis, as it has complications including necrotising scleritis. It has a similar presentation to episcleritis, but it presents with a usually painful red eye and diffuse redness. Photophobia and reduced visual acuity can also be seen.

Subconjunctival haemorrhage is incorrect. This happens when one of the vessels in the conjunctiva ruptures and bleeds into the subconjunctival space (between sclera and conjunctiva). This presents as a painless red eye that does not affect vision. Unlike, in this case, the redness should be more unanimous rather than small vessels being evident. Even though it is benign in itself it is worth considering what might have caused it, this includes chronic cough, constipation, bleeding disorders, anti-coagulant medications and hypertension.

Question:

A 30-year-old man presents with a painless lump in his right testicle. Which one of the following is most strongly associated with testicular cancer?

A.Increasing age

B.Smoking

C.Infertility

D.High maternal age

E.High paternal age

Answer:Infertility

Explanation:

Infertile men are 3 times more likely to develop testicular cancer

Important for meLess important

Question:

A 6-year-old boy presents to his GP with a swollen right eye. It started when he was playing outside in the garden. His mother is worried because he is struggling to read the writing in his books. He has no past medical history, and this has never happened before.

On examination, the right eye lid is erythematous and warm, and the eye appears to be protruding. Eye movements are restricted in all planes. The left eye appears normal. His temperature is 37.9ºC and his heart rate 120 beats/minute.

What is the most likely diagnosis?

A.Preseptal cellulitis

B.Orbital cellulitis

C.Minimal change disease

D.Acute mastoiditis

E.Hay fever

Answer:Orbital cellulitis

Explanation:

Orbital cellulitis differentiated from preseptal cellulitis by presence of: reduced visual acuity, proptosis and pain with eye movements

Important for meLess important

This question describes a classic presentation of orbital cellulitis, with a painful, swollen eye with reduced visual acuity, proptosis and restriction of eye movement. The diagnosis is in keeping with the fever and tachycardia which indicate infection.

Preseptal cellulitis is a good differential for a swollen eye, but does not cause reduced visual acuity, proptosis and restriction of eye movement. Minimal change disease is the most common cause of nephrotic syndrome which would cause bilateral periorbital oedema – unilateral swelling with restricted eye movements and raised temperature is unlikely. Mastoiditis would cause a fever and tachycardia but also causes a boggy swelling behind the ear. Hay fever is unlikely to cause one swollen eye and does not cause fever.

Question:

A 72-year-old man has just undergone an emergency repair for a ruptured abdominal aortic aneurysm. Pre operatively he was taking aspirin, clopidogrel and warfarin. Intra operatively he received 5000 units of unfractionated heparin prior to application of the aortic cross clamp. His blood results on admission to the critical care unit are as follows:

Full blood count

Hb 8 g/dl

Platelets 40 \* 109/l

WBC 7.1 \* 109/l

His fibrin degradation products are measured and found to be markedly elevated. Which of the following accounts for these results?

A.Anastomotic leak

B.Disseminated intravascular coagulation

C.Heparin induced thrombocytopenia

D.Adverse effect of warfarin

E.Adverse effects of antiplatelet agents

Answer:Disseminated intravascular coagulation

Explanation:

The combination of low platelet counts and raised FDP in this setting make DIC the most likely diagnosis.

Question:

A 32-year-old woman complains of unilateral throbbing headache, photophobia and nausea. She has had multiple attacks monthly for the past 6 months. There are no co-morbidities, she is on no other medications and has no known drug allergies.

What is the most appropriate management of this patient?

A.Prescribe an oral NSAID and pizotifen prophylaxis

B.Prescribe an oral triptan and propranolol prophylaxis

C.Prescribe an oral triptan and topiramate prophylaxis

D.Prescribe oral NSAID and topiramate prophylaxis

E.Prescribe oral triptan and verapamil prophylaxis

Answer:Prescribe an oral triptan and propranolol prophylaxis

Explanation:

Migraine

acute: triptan + NSAID or triptan + paracetamol

prophylaxis: topiramate or propranolol

Important for meLess important

This patient should be prescribed an oral triptan and propranolol prophylaxis. The patient requires oral triptan and non-steroidal anti-inflammatory drug (NSAID) or triptan and paracetamol because she is having an acute migraine attack. As she is having two or more attacks per month she should be offered prophylaxis. Although topiramate is appropriate prophylaxis, this woman is of childbearing age, and therefore the most appropriate prophylaxis for her would be propranolol.

NICE no longer recommends pizotifen for migraine prophylaxis due to its common side effects of drowsiness and weight gain.

Verapamil is used in the prophylaxis of cluster headaches.

Question:

A 38-year-old male with clinically suspected acromegaly has returned to the endocrine clinic for the results of investigations carried out last week. His blood tests confirm a raised insulin-like growth factor 1 (IGF-1).

What is the most appropriate next course of action?

A.Confirm the diagnosis with an MRI pituitary

B.Random serum growth hormone (GH) level

C.Serum growth hormone-releasing hormone (GHRH) level

D.Oral glucose tolerance test (OGTT) and serial growth hormone (GH) levels

E.Start the patient on octreotide

Answer:Oral glucose tolerance test (OGTT) and serial growth hormone (GH) levels

Explanation:

In the investigation of acromegaly, if a patient is shown to have raised IGF-1 levels, an oral glucose tolerance test (OGTT) with serial GH measurements is suggested to confirm the diagnosis

Important for meLess important

The Endocrine Society recommends that in patients with clinically suspected acromegaly, and an elevated or equivocal serum IGF-1 level, the diagnosis should be confirmed by finding a lack of GH suppression with an OGTT.

Carrying out a pituitary MRI may demonstrate a pituitary tumour. However, this is not the recommended investigation to confirm a diagnosis of acromegaly.

Confirming the diagnosis with a single GH level is incorrect as GH levels vary throughout the day and therefore cannot be used to confirm acromegaly.

Carrying out a GHRH level is not the next most appropriate investigation to confirm the diagnosis as the vast majority of acromegaly cases are due to pituitary adenomas. Acromegaly secondary to GHRH secreting tumours are rare and should only be investigated for cases where a pituitary defect cannot be confirmed.

Starting the patient on treatment for acromegaly is not the correct next course of action as the diagnosis must first be confirmed.

Question:

A 74-year-old man attends the emergency department with his wife complaining of weakness in his right arm and leg, reduction in his vision, and dysphasia. His wife tells you that this started around half an hour ago and she phoned an ambulance immediately. The patient is sent for a CT head and this excluded haemorrhagic stroke. He was subsequently sent for a CT contrast angiography and this showed confirmed occlusion of the proximal anterior circulation.

How should this patient be managed in the acute setting?

A.Alteplase plus thrombectomy

B.Alteplase alone

C.Thrombectomy alone

D.Aspirin alone

E.Aspirin and clopidogrel

Answer:Alteplase plus thrombectomy

Explanation:

A combination of thrombolysis AND thrombectomy is recommend for patients with an acute ischaemic stroke who present within 4.5 hours

Important for meLess important

This patient has had an ischaemic stroke, likely of the anterior circulation and the guidelines recommend that if presenting within 4.5 hours this patient should receive a combination of thrombolysis (with alteplase) and thrombectomy. Alteplase is a tissue plasminogen activator that acts as a thrombolytic, cleaving plasminogen to plasmin and initiating fibrinolysis which is the breakdown of the clot. Thrombectomy is the physical removal of the blood clot, performed under image guidance using a specialised device that is inserted at the groin into the femoral artery and guided up to the brain. As this patient has been sent for CT angiography and the stroke has been confirmed to be due to occlusion of the proximal anterior circulation, both thrombectomy and thrombolysis should be performed in combination for the best possible outcome.

Alteplase can be considered alone if thrombectomy is not available but a better prognosis is more likely if performed in conjunction.

This patient is presenting within the window for thrombolysis, it would not be appropriate to perform thrombectomy alone without considering thrombolysis. According to the guidelines as this patient is presenting with the window for thrombolysis he should be considered for both in combination.

Aspirin and clopidogrel are both options for secondary prevention of stroke. Aspirin alone would not be adequate management in the acute setting and clopidogrel is offered as a means of minimising future stroke risk.

Question:

A 60-year-old woman diagnosed with a primary breast carcinoma is deciding whether or not to consent to have an axillary node clearance.

Which complication should the patient be made aware of, specifically relating to this procedure?

A.Brachial plexus injury

B.Lymphedema causing functional arm impairment

C.Axillary artery dissection

D.Pectoralis minor haematoma

E.Sensory loss in musculocutaneous nerve territory

Answer:Lymphedema causing functional arm impairment

Explanation:

Axillary node clearance is associated with arm lymphedema and functional arm impairment

Important for meLess important

Besides the risks common to all surgical procedures (e.g. infection, post-operative pain, bleeding), axillary node clearance is associated with a 14% risk of lymphedema which can cause functional arm impairment1.

The other answers listed are all theoretically possible, but do not occur with any appreciable frequency.

References:

1. Johnson, Anna Rose MPH et al. Lymphedema Incidence After Axillary Lymph Node Dissection Quantifying the Impact of Radiation and the Lymphatic Microsurgical Preventive Healing Approach Annals of Plastic Surgery: April 2019 - Volume 82 - Issue 4S - p S234–S241.

Question:

Whilst performing a pre-anaesthetic assessment, a young patient mentions that her mother 'had a bad reaction to some of the drugs' during an appendicectomy procedure many years ago and had to stay in intensive care on a ventilator for a short time after the operation. There were no long term complication. What condition should you be most worried about?

A.Merkel's diverticulum

B.Hypersensitivity pneumonitis

C.Stevens-Johnson syndrome

D.Prednisolone allergy

E.Pseudocholinesterase deficiency

Answer:Pseudocholinesterase deficiency

Explanation:

The clue here is the timeframe of the mother's adverse reaction.

Pseudocholinesterase deficiency (also known as suxamethonium apnoea) is a rare abnormality in the production of plasma cholinesterases. This leads to an increased duration of action of muscle relaxants used in anaesthesia, such as suxamethonium. Respiratory arrest is inevitable unless the patient can be mechanically ventilated safely while waiting for the circulating muscle relaxants to degrade.

Pre-anaesthetic assessments are important to recognise a family history or previous episodes of complications such as this before they occur.

Question:

A 58-year-old female has been suffering with dysphagia for both solids and liquids for around 3 months. She has undergone pressure manometry in her oesophagus and the gastroenterologist has diagnosed her with achalasia.

Which surgical treatment is used for this condition?

A.Heller cardiomyotomy

B.Laparoscopy

C.Nissen fundoplication

D.No surgical treatments available

E.Oesophageal stent

Answer:Heller cardiomyotomy

Explanation:

Surgical treatment of achalasia - Heller cardiomyotomy

Important for meLess important

This woman is suffering achalasia which is a condition where the lower oesophageal sphincter fails to relax leading to difficulty swallowing food and liquids. More women are affected and there is an autoimmune element to the condition.

A Heller cardiomyotomy is a surgical procedure where the muscle around the lower oesophageal sphincter is loosened to allow easier passage of food and drink through the oesophagus and into the stomach.

A laparoscopy is a procedure where a small incision is made and a tiny camera is placed on the end. It is often used in the diagnosis and management of endometriosis. It is not the correct procedure for achalasia.

A Nissen fundoplication is used for chronic gastro-oesophageal reflux disease. This procedure tightens the lower oesophageal sphincter to reduce reflux of acid back out of the stomach.

An oesophageal stent is used to widen the oesophagus when it has been narrowed by a blockage such as a tumour to help preserve the ability to swallow. It is not required for the treatment of achalasia.

Question:

You're on an acute take ward and you are asked to see a patient by your foundation doctor. The foundation doctor is concerned about this patient as he is uncertain of the next step in management and investigation.

The patient is a 44-year-old male who has been admitted with excess tearing. He has a past medical history of allergic rhinitis. He uses nasal saline rinses several times a day. His father recently died of lung cancer with brain metastases.

This patient has had extensive investigations in multiple other hospitals due to his concerns of a cancer diagnosis causing his excessively watery eyes. He has had three CT orbits in the last 12 months which have been reported as normal. On ophthalmic examination, he has some crusting and erythema of his lid margins, but it is a normal examination otherwise. The patient remains convinced that a cancer diagnosis still can't be excluded.

Which of the following best describes the reason for this patient's presentation?

A.Blepharitis

B.Conversion disorder

C.Ectropion

D.Illness anxiety disorder

E.Somatoform disorder

Answer:Illness anxiety disorder

Explanation:

Illness anxiety disorder (hypochondriasis) is the persistent belief in the presence of an underlying serious disease, e.g. cancer

Important for meLess important

There is a range of psychological disorders recognised that lead to the recurrent presentation of patients to both primary and secondary care.

In this scenario, a cause for the patient's symptoms has been identified, however, the patient still wishes for further diagnostic tests. It is apparent that the patient fears that there is an undiscovered underlying cause for his symptoms. This is most consistent with illness anxiety disorder, also known as hypochondriasis.

Whilst ectropion and other external eye disorders can lead to dysfunctional tear drainage and blepharitis is a common cause for both dry and watery eyes, they don't truly address the underlying cause for this patients presentation to hospital.

Conversion disorders are a type of functional neurological disorder, typically associated with negative symptoms (the loss of a function), in the absence of a medical or structural cause. Often patients are indifferent towards this, although they're associated with previous distressing experiences and other mental health conditions.

Somatoform disorder describes patients with multiple, unexplained, persistent symptoms that often lead to extensive investigation before recognition of no underlying medical cause. Although, in some cases, it is recognised earlier due to anatomically or physiologically inappropriate presentations or suggestive clinical signs. In this case, only one symptom has been presented and a diagnosis of an illness anxiety disorder is more likely than a somatoform disorder.

Question:

A 45-year-old woman presents with a 3 day history of fever, myalgia and fatigue 1 week after returning from Kenya where she was visiting relatives.

On examination she has mild jaundice and splenomegaly of 4cm.

What is the most likely diagnosis?

A.Malaria

B.Dengue fever

C.Hepatitis A

D.Yellow fever

E.Japanese encephalitis

Answer:Malaria

Explanation:

Splenomegaly and jaundice are commonly seen in malaria and people travelling to malaria areas to visit friends and relative are often the most at risk as if they were born in a country with high levels of malaria they may believe they still have immunity and so don't take antimalarials.

This is the wrong part of the world for Dengue fever or Japanese encephalitis

Yellow fever is present in Kenya but you would expect more significant jaundice and bleeding. Hepatitis A is a possibility with the symptoms described but usually has a longer incubation period and you would expect to see more significant jaundice rather than splenomegaly.

Question:

A 44-year-old shop stocking agent attends a routine GP surgery with pain in both wrists and complains of numbness and tingling at night. She often needs to shake her wrists in the morning to get the feeling back in her fingers. Examination shows no neurovascular compromise in her hands and Phalen's test is positive. There is reduced grip strength and normal range of motion in her wrists.

What is the first-line treatment?

A.Carpal tunnel release surgery

B.Non-steroidal anti-inflammatories

C.Physiotherapy

D.Rest + immobilisation + cold compress + elevation

E.Wrist splinting +/- steroid injection

Answer:Wrist splinting +/- steroid injection

Explanation:

Carpal tunnel syndrome: a trial of conservative treatment (wrist splint +/- steroid injection) should be tried initially for patients with mild-moderate symptoms

Important for meLess important

Wrist splinting +/- steroid injection - this is the correct answer. A trial of conservative treatment (wrist splint +/- steroid injection) should be tried initially for patients with mild-moderate symptoms. Although steroid injection is difficult to obtain in practical terms, this is the guidance as per NICE and is supported by medical evidence. Physiotherapy can be given alongside but is not as helpful alone in patients with moderate or severe symptoms (reduced grip strength, paraesthesia, muscle wasting).

Carpal tunnel release surgery - this is incorrect. This is reserved for third-line management for severe or recalcitrant symptoms with or without persistent neuropathy.

Non-steroidal anti-inflammatories - this is incorrect. This could be used for mild symptoms, but wrist splinting and physiotherapy are generally more effective. Beware of the long-term use of NSAIDs.

Physiotherapy - this is incorrect. Although physiotherapy has a place for the management of mild symptoms, it should be given alongside wrist splinting. Physiotherapy alone has little long-term benefit for people with moderate carpal tunnel syndrome symptoms (reduced grip strength).

Rest + immobilisation + cold compress + elevation - this is incorrect. This is the protocol for minor injuries and not for carpal tunnel syndrome.

Question:

A 25-year-old woman is referred by her GP to the gastroenterology clinic.

She has a background of type 1 diabetes mellitus and reports nine months of loose stools, abdominal cramps, and bloating. Her GP performed some initial investigations shown below.

Hb 131 g/L (115 - 160)

Platelets 265 \* 109/L (150 - 400)

WBC 5.1 \* 109/L (4.0 - 11.0)

CRP 3 mg/L (< 5)

Stool culture Negative

Coeliac screen Negative

Faecal calprotectin Negative

You suspect she may have irritable bowel syndrome but given her diabetes you are also considering small bowel overgrowth syndrome.

What is the most appropriate initial test in this case?

A.Abdominal X-ray

B.Capsule endoscopy

C.Hydrogen breath test

D.Small bowel aspiration and culture

E.Urea breath test

Answer:Hydrogen breath test

Explanation:

Hydrogen breath testing is an appropriate first line test for diagnosis of small bowel overgrowth syndrome

Important for meLess important

Small bowel overgrowth syndrome results from an excess of bacteria in the small bowel. It causes symptoms which overlap considerably with irritable bowel syndrome but should be considered particularly in patients with relevant risk factors, in this case diabetes.

The first-line test for the condition is the hydrogen breath test. In this test, a fasted patient is given a high glucose drink. Bacteria in the small bowel metabolise this glucose to hydrogen gas, which can be measured as exhaled hydrogen. The more bacteria there are in the small bowel, the more hydrogen will be exhaled and thus people with small bowel overgrowth syndrome will tend to have significantly higher rises in hydrogen gas over time than healthy controls.

Small bowel aspiration and culture is another test that can be used for the diagnosis of small bowel overgrowth syndrome. It involves collecting a sample of fluid from the small intestine with endoscopy and culturing this sample for bacterial growth. As it is considerably more invasive than the hydrogen breath test, it is not used first-line.

Capsule endoscopy is useful in examining the appearance of the small bowel which can be hard to visualise through traditional endoscopy procedures. It involves a patient swallowing a capsule containing a small wireless camera that records images as it passes through the digestive tract. It is useful for diagnosing conditions by appearance (e.g. malignancy, polyps, colitis) but at present it cannot be used to collect biopsies for culture and has no role in the diagnosis of small bowel overgrowth syndrome.

Abdominal x-ray also has no role in the diagnosis of small bowel overgrowth syndrome as there are no specific changes associated with this condition with this imaging.

The urea breath test is used in the diagnosis of Helicobacter pylori infection.

Question:

A 74-year-old man with was diagnosed with Parkinson's disease six years ago by a neurologist after extensive investigation. He presents to his general practitioner (GP) with recurrent falls over the previous three months.

The falls are happening 3 or 4 times per day. They tend to occur just after standing from sitting and are associated with visual blurring and generalised weakness. There is no loss of consciousness or postictal symptoms.

Current medications are co-careldopa 25/100mg three times daily which he has been taking for five years and atorvastatin 40mg once daily which he has been taking for nine years.

The GP measures the patient's blood pressure whilst supine before asking the patient to stand for 3 minutes and repeating the reading.

supine blood pressure 132/91 mmHg

standing blood pressure 110/80 mmHg

Which of the following options is the most likely cause for this finding?

A.A side effect of co-careldopa

B.Autonomic failure due to Parkinson's disease

C.Dehydration due to insufficient fluid intake

D.A side effect of atorvastatin

E.Normal variant

Answer:Autonomic failure due to Parkinson's disease

Explanation:

Parkinson's disease can lead to postural hypotension due to to autonomic failure

Important for meLess important

Postural hypotension is defined as a fall in blood pressure (BP) of at least 20 mmHg systolic and 10 mm Hg diastolic within three minutes in the upright position. The additional symptoms listed are typical of postural hypotension.

Since postural instability is also a symptom of Parkinson's plus syndromes, these should also be considered at this stage. However, autonomic dysfunction would likely present earlier in these syndromes.

Postural hypotension is a side effect of co-careldopa. However, he is currently on a low dose and has been taking it for a number of years. It is therefore unlikely to cause a side effect now.

There is nothing in the scenario to suggest dehydration and even if this were the case, it would be unlikely to cause a clinically significant postural drop.

Postural hypotension is not a common side effect of atorvastatin. Statins commonly cause muscle aches.

As explained above, the fall in blood pressure is suggestive of postural hypotension and therefore, it is not a normal variant.

Question:

A 67-year-old female attends the emergency department with a 3-week history of cough productive of clear sputum and intermittent low-grade fever. She denies shortness of breath, chest pain, weight loss or haemoptysis. She has no history of respiratory illness, but takes metformin for type 2 diabetes and has a 25-pack-year smoking history. She has no known drug allergies.

A chest x-ray is performed in the emergency department which is normal. Blood tests are taken which show:

Hb 140 g/L Female: (115 - 160)

Platelets 200 \* 109/L (150 - 400)

WBC 7.8 \* 109/L (4.0 - 11.0)

CRP 108 mg/L (< 5)

What is the most appropriate management plan?

A.Amoxicillin

B.Clarithromycin

C.Doxycycline

D.Erythromycin

E.Nitrofurantoin

Answer:Doxycycline

Explanation:

Oral doxycycline is first-line for acute bronchitis (unless pregnant/child)

Important for meLess important

The most likely diagnosis is acute bronchitis. Acute bronchitis most commonly presents with a cough that may be productive of white, clear or discoloured sputum. Her chest X-ray is normal, which excludes pneumonia. In most cases, acute bronchitis can be managed conservatively. However, the fact that she has a raised CRP >100 is an indication to commence antibiotics, as per the NICE guidelines. The first-line antibiotic recommended is oral doxycycline: 200mg on the first day, then 100mg once daily for 4 days, to complete a 5-day course in total.

Amoxicillin is the treatment of choice for acute bronchitis in pregnant women and young people aged 12-17.

Clarithromycin can be given for acute bronchitis, but it is not recommended as first-line therapy.

Erythromycin can be given to pregnant women and young people aged 12-17 with acute bronchitis.

Nitrofurantoin is used predominantly for urinary tract infections therefore this is not correct.

Question:

Which of the following cytotoxic agents is most associated with lung fibrosis?

A.Doxorubicin

B.Bleomycin

C.Cisplatin

D.Cyclophosphamide

E.Vincristine

Answer:Bleomycin

Explanation:

Bleomycin may cause pulmonary fibrosis

Important for meLess important

Bleomycin is a cytotoxic antibiotic used to treat metastatic germ cell cancer, squamous cell carcinoma and in some regimes non-Hodgkin's lymphoma. Lung fibrosis is the major adverse effect and is dose-related

Question:

A 53-year-old man has an arterial blood gas sample taken and the following results are obtained, he is breathing room air.

pH 7.49

pCO2 2.4 kPa

pO2 8.5 kPa

HCO3 22 mmol/l

Which of the conditions listed below is most likely to account for these findings?

A.Respiratory alkalosis

B.Type 2 respiratory failure

C.Metabolic acidosis with increased anion gap

D.Metabolic alkalosis

E.Metabolic acidosis with normal anion gap

Answer:Respiratory alkalosis

Explanation:

The hyperventilation results in decreased carbon dioxide levels, causing a respiratory alkalosis (non compensated).

Question:

An elderly man was in his local swimming pool when the lifeguard had to rescue him as he suddenly became unconscious. An ambulance brings him into the emergency department, his blood pressure is 90/72 mmHg, a senior doctor suspects a ruptured abdominal aortic aneurysm and urgently requests an abdominal scan which confirms the result. The patient is unconscious and there are no medical records on the computer system. What is the best course of action?

A.Attempt to wake the patient to gain consent

B.Take the patient to theatre for an urgent laparotomy

C.Apply to the Courts for consent

D.Ring the next of kin requesting permission

E.Ring the GP requesting confirmation that there is no DNR (Do Not Resuscitate)

Answer:Take the patient to theatre for an urgent laparotomy

Explanation:

In extremis, one can act on the assumption that the patient would want all reasonable measures to be taken in their best interest. In this case, it would be the urgent repair (via laparotomy) of a ruptured Abdominal Aortic Aneurysm (AAA). To attempt to wake the patient would be impractical and is potentially wasting time. Likewise, an application to the Courts would be wasting time as by the time your request was processed the patient would almost certainly be dead. Ringing the next of kin risks breaking confidentiality and would again be wasting precious time, as would calling the GP. It would be different if the DNR were known to you, in which case you must confirm the DNR and then document that, before making the patient as comfortable as possible but without resuscitation.

As an aside more recent management of AAA is to take to radiology for a CT scan so the surgeons know the position of the rupture. Although it delays getting to surgery it improves the surgical approach and outcome.

GMC: Seeking patients' consent: The ethical considerations, 1998; paragraph 18 - Emergencies

Question:

A 35-year-old man presents to the Emergency Department with a 2-day history of fever, vomiting and yellowing of the skin and eyes. He has had 2 nosebleeds and noticed some bleeding from his gums while brushing his teeth.

He returned 3 days ago from a week spent working as a photographer in the Democratic Republic of the Congo. Shortly before his return, he experienced a 2-3 day illness with fever, malaise, headache and a few episodes of vomiting. His symptoms had resolved by the day of his flight home.

He has a past medical history of asthma and psoriasis.

What is the most likely diagnosis?

A.Chikungunya

B.Epstein Barr virus

C.Hepatitis A virus

D.Lassa fever

E.Yellow fever

Answer:Yellow fever

Explanation:

Yellow fever typically presents with flu like illness → brief remission→ followed by jaundice and haematemesis

Important for meLess important

The correct answer is yellow fever . This is caused by the yellow fever virus, which is a member of the Flaviviridae virus group and is transmitted by the Aedes mosquito. It is found in sub-Saharan Africa and South America.

The incubation period is short at 3-6 days following a mosquito bite. The first stage classically causes a non-specific illness which is often described as 'flu-like' with fever, malaise, nausea, myalgia and headache. This stage is due to the circulating virus in the bloodstream (viraemic stage). There is then a recovery stage when the viraemia clears. Most patients recover completely following this stage and do not progress to the third stage. Around 15% of patients progress after about 3-7 days after the onset of symptoms which presents with fever, nausea and vomiting, acute kidney injury, hepatitis with jaundice, and haemorrhage.

Chikungunya is incorrect. This is a viral infection which is transmitted by mosquitoes. It causes a febrile illness, but the hallmark of the illness is severe bone and joint pain which are not seen here. It does not cause a biphasic pattern of illness with recovery in between. There may be mild hepatitis but jaundice does not generally occur.

Epstein Barr virus (EBV) is incorrect. EBV can cause severe illness in a small minority of patients and can cause jaundice, but it does not have a biphasic presentation. Bleeding is uncommon unless there is severe thrombocytopenia. EBV is spread through person-to-person contact.

Hepatitis A virus is incorrect. Hepatitis A virus classically causes an initial period of diarrhoea and vomiting, followed around 1 week later by jaundice. However, there is no period of recovery between these two stages. The patient is also generally feeling systemically better by the time of onset of jaundice due to the clearance of viraemia, and it is uncommon for a patient with jaundice secondary to hepatitis A to be systemically unwell. Bleeding is also not generally a feature of hepatitis A unless the patient has fulminant liver failure. The incubation period is also longer than in this case, with an average of 28 days. Hepatitis A is spread through the faecal-oral route.

Lassa fever is incorrect. This is a type of viral haemorrhagic fever, which can cause fever, severe systemic illness and haemorrhage. It does not generally cause jaundice and does not have an interim period of recovery. It is also unlikely because it is found in West Africa and has not been reported in the Democratic Republic of the Congo. It is spread from person to person or via contact with the faeces of infected rodents.

Question:

A 34-year-old lady presents to the gynaecology department complaining of heavy, painful periods, and difficulty conceiving. She is concerned, as she and her husband would like to start a family soon. On further investigation, an ultrasound scan reveals a 4.5cm submucosal uterine fibroid. Which one of the following treatments is most appropriate to treat her fibroids?

A.Hysterectomy

B.Tranexamic acid

C.Hysteroscopic endometrial ablation

D.Levonorgestrel-releasing intrauterine system (IUS)

E.Myomectomy

Answer:Myomectomy

Explanation:

The only effective treatment for large fibroids causing problems with fertility is myomectomy if the woman wishes to conceive in the future

Important for meLess important

This lady has a large submucosal fibroid which is likely distorting the shape of her uterus and contributing to her infertility.

Levonorgestrel-releasing IUS and tranexamic acid provide symptomatic relief but will not impact on fertility making them inappropriate. Additionally, this fibroid is rather large making medical treatment likely ineffective.

Hysterectomy and hysteroscopic endometrial ablation are not suitable for a woman who desires to conceive in the future.

Myomectomy, which involves surgically removing the fibroid from the uterus is currently the only form of treatment for fibroids which has sufficient evidence of improving fertility. This is most likely to be successful for submucosal fibroids which reduce fertility through preventing implantation.

There is not currently sufficient evidence for routine use of uterine artery embolisation to improve future fertility.

Question:

A 24-year-old man reports a 1-year history of increasing low back pain. He reports that the symptoms are usually worse after being sedentary. There is also stiffness in this area that can last up to 30 minutes in the morning. He is normally a keen footballer and gym-goer and finds that both of these actually improve his pain levels. However, he has been increasingly troubled by pain in his right Achilles tendon which has limited his activity levels.

His GP has referred him to a rheumatologist and has arranged lumbar spine and sacroiliac joint x-rays in the meantime.

Which of these collection of findings are most likely to be seen?

A.Block vertebra and excessive lumbar lordosis

B.Joint space narrowing, osteophytes and subchondral cysts

C.Marginal erosions, soft tissue swelling and periarticular osteoporosis

D.Soft tissue swelling, punched-out bone lesions and overhanging sclerotic margins

E.Subchondral erosions, sclerosis and squaring of vertebrae

Answer:Subchondral erosions, sclerosis and squaring of vertebrae

Explanation:

Ankylosing spondylitis - x-ray findings: subchondral erosions, sclerosis

and squaring of lumbar vertebrae

Important for meLess important

This man has typical features of ankylosing spondylitis: low back pain which is worse at rest and improves on activity, early morning stiffness exceeding 15 minutes in duration, and associated Achilles tendinopathy (enthesitis). Onset is most common in males between 20-30 years of age. Plain radiography commonly shows subchondral erosions and sclerosis affecting the sacroiliac joints (sacroiliitis). In the lumbar spine, abnormalities such as vertebral body squaring, ligament calcification and syndesmophytes may be seen, eventually leading to the formation of a 'bamboo spine'.

Block vertebra describes an anatomic variant where there is a failure of separation of two or more adjacent vertebral bodies. Excessive lumbar lordosis is not seen in ankylosing spondylitis - in fact, the opposite is true.

Joint space narrowing, osteophytes and subchondral cysts are hallmark radiographic appearances of osteoarthritis.

Marginal erosions, soft tissue swelling and periarticular osteoporosis are seen in rheumatoid arthritis.

Soft tissue swelling, punched-out bone lesions and overhanging sclerotic margins are seen in gout.

Question:

A 25-year-old man presents with back pain. Which one of the following may suggest a diagnosis of ankylosing spondylitis?

A.Rapid onset

B.Gets worse following exercise

C.Bone tenderness

D.Pain at night

E.Improves with rest

Answer:Pain at night

Explanation:

Question:

A 70-year-old man is admitted to the Emergency Department after vomiting blood earlier in the day. Which one of the following factors best indicates a significant upper gastrointestinal bleed?

A.Creatinine = 190 µmol/l on a background of normal renal function

B.Platelets of 89 \* 109/l

C.Potassium = 2.9 mmol/l

D.Sodium = 147 mmol/l

E.Urea = 15.4 mmol/l on a background of normal renal function

Answer:Urea = 15.4 mmol/l on a background of normal renal function

Explanation:

An upper gastrointestinal bleed can act as a 'protein meal' and cause a temporary, disproportionate rise in the blood urea.

Question:

A 25-year-old man is brought to the emergency department after being found unconscious in the street. He smells strongly of alcohol.

His heart rate is 120 beats per minute, his blood pressure is 83/60 mmHg, his respiratory rate is 8 breaths per minute, and his oxygen saturations are 90% on room air.

He is given oxygen and blood tests are performed:

Bicarbonate 34 mmol/L (22 - 28)

Sodium 137 mmol/L (135 - 145)

Potassium 2.9 mmol/L (3.5 - 5.0)

Urea 4.7 mmol/L (2.0 - 7.0)

Creatinine 118 umol/L (55 - 120)

pH 7.52 (7.35 - 7.45)

pO2 9.0 kPa (10 - 14)

pCO2 7.2 kPa (4.5 - 6.0)

What is the most likely underlying cause for this patient's presentation?

A.Addisonian crisis

B.Alcoholic ketoacidosis

C.Opioid toxicity

D.Prolonged diarrhoea

E.Prolonged vomiting

Answer:Prolonged vomiting

Explanation:

Metabolic alkalosis + hypokalaemia → ?prolonged vomiting

Important for meLess important

Prolonged vomiting is correct. This patient has metabolic alkalosis (raised pH and bicarbonate) with evidence of respiratory compensation (hypoventilation, a low PO2 and raised PCO2). Of the options listed, the most likely cause of metabolic alkalosis and hypokalaemia is prolonged vomiting. This is because large amounts of hydrochloric acid are lost, causing loss of H+ ions, along with fluid loss. This fluid loss leads to activation of the renin-angiotensin-aldosterone system (RAAS) due to reduced renal perfusion leading to increased aldosterone secretion. Aldosterone promotes the reabsorption of Na+ in exchange for H+ and K+ in the distal convoluted tubules of the kidneys. In general, where Na+ goes, water follows, meaning the blood volume is increased, however, more potassium and H+ are lost, leading to hypokalaemic metabolic alkalosis. It may be that this patient suffers from alcohol use disorder and has had prolonged vomiting as a result of it.

Addisonian crisis is incorrect. In Addison's disease, there is a reduced amount of adrenal hormone secretion, particularly aldosterone and cortisol. Aldosterone promotes the reabsorption of Na+ in exchange for H+ and K+ in the distal convoluted tubules of the kidneys. Since there is less aldosterone secretion, there is more H+ and K+ retained, leading to hyperkalaemic metabolic acidosis in Addison's disease, not hypokalaemic metabolic alkalosis.

Alcoholic ketoacidosis is incorrect. Although the patient smells strongly of alcohol, alcoholic ketoacidosis leads to metabolic acidosis, not alkalosis. This occurs in patients who suffer from alcohol use disorder and malnutrition as hepatic glycogen stores are depleted and gluconeogenesis is impaired. This leads to hypoglycaemia and the body depends on fatty acid and ketone metabolism, producing ketone acids and ketoacidosis.

Opioid toxicity is incorrect. Although this can cause hypoventilation, there are no other features suggestive of it (e.g. pinpoint pupils). The hypoventilation would lead to hypercapnic respiratory acidosis. In this scenario, hypoventilation is a compensatory mechanism for metabolic alkalosis.

Prolonged diarrhoea is incorrect. Although this can present with hypokalaemia and hypovolaemic shock, this leads to metabolic acidosis due to the loss of bicarbonate ions from the gut, rather than metabolic alkalosis.

Question:

Russel is a 62-year-old man who suffers from chest pain and severe shortness of breath. He also complains of shortness of breath when lying down. At night, he sometimes wakes up from his sleep feeling breathless. He is a heavy smoker and suffers from chronic obstructive pulmonary disease. Recently, his symptoms are getting worse. On examination, he has a bilateral expiratory wheeze. Abdominal examination reveals findings suggestive of hepatomegaly. You suspect that he might suffer from cor pulmonale.

Which of the following would support your suspicion?

A.Shortness of breath on exertion

B.Orthopnoea

C.Chest pain on exertion

D.Hepatomegaly

E.Paroxysmal nocturnal dyspnoea

Answer:Hepatomegaly

Explanation:

Signs of right-sided heart failure are raised JVP, ankle oedema and hepatomegaly

Important for meLess important

Cor pulmonale describes the hypertrophy of the right ventricle and right heart failure that are caused by pulmonary arterial hypertension. In COPD, hypoxia induces pulmonary vasoconstriction, eventually causing pulmonary hypertension.

This question tests the ability to differentiate between symptoms of left-sided heart failure and those of right-sided heart failure.

Shortness of breath on exertion, orthopnoea and paroxysmal nocturnal dyspnoea are more indicative of left-sided heart failure. Other signs of left-sided heart failure are wheeze and cough.

Chest pain on exertion is indicative of angina due to coronary artery disease.

Hepatomegaly is a sign of right-sided heart failure. Other signs of right-sided heart failure are raised JVP and bilateral ankle oedema

Question:

The first line treatment in amoebiasis is:

A.Albendazole

B.Hydroxychloroquine

C.Metronidazole

D.Ciprofloxacin

E.Ivermectin

Answer:Metronidazole

Explanation:

Question:

A 79-year-old man presents to his GP with back pain. When asked to show where the pain is, he points to the middle of his back, at the T8 level. The pain has kept him awake at night for the past few days. He denies any sensory changes, weakness or difficulty passing urine. But on examination, you assess the power in his right leg as 5/5 and 4/5 in his left leg. His past medical history includes osteoarthritis, which he occasionally takes over the counter pain relief for, and prostate cancer.

Which of the following is the most appropriate management?

A.Prescribe co-codamol

B.Refer for routine MRI and prescribe dexamethasone

C.Refer for urgent CT scan

D.Refer for urgent MRI

E.Refer for urgent MRI and prescribe dexamethasone

Answer:Refer for urgent MRI and prescribe dexamethasone

Explanation:

If neoplastic spinal cord compression is suspected, high-dose oral dexamethasone should be given whilst awaiting investigations

Important for meLess important

The correct answer is 'Refer for urgent MRI and prescribe dexamethasone'.

This patient has two red flags for their back pain - the fact that it is thoracic and that it is keeping him awake at night. This, combined with his prostate cancer history and reduced power in his left leg, means that neoplastic spinal cord compression needs to be ruled out urgently. As such, the most appropriate thing for the GP to do is to refer him for an urgent MRI (within 24 hours) and prescribe high-dose oral dexamethasone in the meantime.

Prescribe co-codamol may be appropriate if his presentation was due to osteoarthritis or injury. However, given the presenting symptoms and the patient's medical history, you would need to first rule out spinal cord compression.

A CT scan is not the correct investigation for suspected neoplastic spinal cord compression.

This patient does need referring for an urgent MRI. However, patients should be given high-dose dexamethasone while waiting for this.

Prescribing dexamethasone is correct; however, the MRI needs to be performed within 24 hours rather than routinely.

Question:

A 19-year-old woman presents 96 hours after unprotected sexual intercourse (UPSI) and requests emergency contraception (EC). Her last menstrual period finished 4 days ago. She has no significant past medical history and takes no regular medications.

Her blood pressure is 120/75mmHg and her BMI is 24 kg/m2.

After discussing her emergency contraception options she opts to have ulipristal (Ella-One). She also now wants to take regular contraception in the form of a combined oral contraceptive pill (COCP) and would like to know when she can start taking it.

What is the most appropriate advice to give?

A.Barrier methods are not needed as soon as she starts the COCP

B.She should not be prescribed the COCP - an alternative contraception should be considered

C.She should start taking the COCP from 5 days after taking ulipristal

D.She should start taking the COCP from 7 days after taking ulipristal

E.She should wait until the start of her next cycle before starting the COCP

Answer:She should start taking the COCP from 5 days after taking ulipristal

Explanation:

After taking ulipristal acetate women should wait 5 days before starting regular hormonal contraception

Important for meLess important

Ulipristal may reduce the effectiveness of hormonal contraception and as such a period of 5 days before starting the COCP should be advised. Similar advice should be offered for other hormonal contraception methods including the pill, patch or ring.

Barrier methods are required before the effectiveness of the COCP can be assured. If she was starting the COCP in the first 5 days of her cycle barrier methods may not be needed, but this is not the case here.

There is no reason why the patient should not be prescribed the COCP from the details given and as such alternative contraception is not required if this is her preference.

There is no need to wait until the start of the next cycle before taking the pill as long as barrier methods are used for 7 days.

Question:

A 44-year-old female presents with right-sided pleuritic chest pain of sudden onset. The pain is 8/10 severity, constant, and does not radiate to anywhere. She has a past medical history of hypertension, type 2 diabetes, stage 4 chronic kidney disease, hypercholesterolaemia. She does not have any known allergies. On examination, she has a respiratory rate of 24/min, heart rate 120 bpm, temperature of 37.6ºC. There is reduced air entry and inspiratory crackles in the right lower zone. An ECG shows sinus tachycardia and right-sided bundle branch block. D-dimer is reported as elevated. Given the likely diagnosis, what is the diagnostic investigation of choice?

A.Chest x-ray

B.CT chest

C.CT pulmonary angiogram

D.Ventilation–perfusion (VQ) scan

E.Echocardiogram

Answer:Ventilation–perfusion (VQ) scan

Explanation:

Pulmonary embolism and renal impairment → V/Q scan is the investigation of choice

Important for meLess important

1 - Incorrect. A chest x-ray is neither sensitive nor specific for a pulmonary embolism (PE). Although NICE guidelines recommend a chest x-ray as part of the initial workup of a patient presenting with a suspected PE, its main use in this setting is to rule out other differential diagnoses such as pneumonia and pneumothorax rather than for the direct diagnosis of a PE.

2 - Incorrect. Although a CT scan will show detailed images of the internal structures of the body, when investigating a PE the main area of focus is the pulmonary vasculature and therefore a CTPA would be more sensitive than a CT chest.

3 - Incorrect. Although the NICE guidelines suggest a CTPA as the main investigation of choice in a patient with a suspected PE, it is contra-indicated in patients who have a renal impairment or are allergic to contrast media.

4 - Correct. A V/Q scan is the preferred option if the patient has an allergy to contrast media or has renal impairment. The patient in this question has a background of chronic kidney disease and therefore to prevent contrast-induced nephropathy, a V/Q scan would be the preferred option.

5 - Incorrect. An echocardiogram is used to look at the heart and specifically the heart valves and the ejection fraction of the heart. It would not prove to be useful in trying to diagnose a pulmonary embolism as it would not provide a detailed picture of the pulmonary vasculature.

Question:

A 44-year-old presents with a 3-hour history of perineal and testicular pain, redness, and rash. He reports sudden onset, severe pain that is worst over the rash site with reduced sensation to the surrounding skin. His observations are heart rate 97 beats/min, respiratory rate 18 with 98% oxygen saturation in room air, temperature 36.9ºC, blood pressure 122/93mmHg. Examination shows an erythematous rash over the perineum and testicles which the patient believes to have spread since he last checked 30 minutes ago, the cremasteric reflex is present, and both testicles are of equal height. His only past medical history is type 2 diabetes for which he takes dapagliflozin.

What is the most likely diagnosis?

A.Neisseria gonorrhoeae

B.Necrotising fasciitis

C.Testicular torsion

D.Tinea corporis

E.Tinea cruris

Answer:Necrotising fasciitis

Explanation:

Necrotising fasciitis should be suspected in the setting of a rapidly worsening cellulitis with pain out of keeping with physical features

Important for meLess important

This patient is presenting with an acute rash alongside testicular and perineal pain. All the options listed can cause testicular/perineal pain, however, there are features in the vignette that indicate that the most likely answer is necrotising fasciitis. These include:

Diabetes mellitus comorbidity.

Use of an SGLT-2 inhibitor.

Rapidly spreading rash and severe pain.

Reduced sensation (hypoaesthesia) to light touch in the area.

Necrotising fasciitis is a surgical emergency and necessitates rapid debridement and IV antibiotics to prevent extensive loss of tissue (including loss of testicles in this patient).

Neisseria gonorrhoeae is a sexually transmitted infection that can cause a skin rash in disseminated infection (affecting trunk, limbs, palms and soles generally). The typical symptoms of gonorrhoea include mucopurulent discharge, testicular discomfort and swelling (from epididymo-orchitis), proctitis, and dysuria. It is unlikely that the patient would present with a rapid onset testicular and perineal rash and there is no indication of any of the more traditional symptoms of dysuria or discharge which would favour this diagnosis.

Testicular torsion can cause an acutely tender testicle. The vignette specifically indicates that there is the preservation of the cremaster reflex and that both testicles are of equal height - this should steer the student away from this option.

Tinea corporis (or ringworm) is a fungal infection of the skin. Typically this affects areas such as the scalp and it is very rare for the genitals to be affected by this fungus. It would not be expected to cause the dramatic pain indicated in this vignette and would not cause a sudden onset rash which is quickly spreading. As such, this is the incorrect answer.

Tinea cruris (or 'jock itch') is a type of dermatophytosis that can affect men's groin area due to moisture getting trapped in the area (particularly in warm weather or in obese individuals). It usually begins in the skin-folds and does not typically affect the scrotum. The rash is usually pink with a scaly edge. As it is not usually rapidly progressive and causes more itch (than severe pain out of keeping with appearances), this is an unlikely diagnosis.

Question:

A 46-year-old woman presents acutely with type II necrotising fasciitis. A culture of the wound grows gram-positive cocci in chains.

What is the most likely causative organism?

A.Staphylococcus aureus

B.Escherichia coli

C.Vibrio vulnificus

D.Streptococcus pyogenes

E.Clostridium Perfringens

Answer:Streptococcus pyogenes

Explanation:

Streptococcus pyogenes is the most common cause of type 2 necrotising fasciitis

Important for meLess important

Streptococcus pyogenes is the most common cause of type 2 necrotising fasciitis

Staphylococcus aureus is usually found in clusters.

Vibrio vulnificus is a gram negative rod that is a rare cause of type III necrotising fasciitis.

Escherichia coli and pseudomonas aeruginosa are both gram negative rods that can cause type I necrotising fasciitis.

Clostridium Perfringens is a gram positive rod that can cause type I necrotising fasciitis.

Question:

A 50-year-old man presented to the emergency department with a 1 week history of worsening dyspnoea. A chest x-ray reveals a complete white out of the left lung, indicative of a large pleural effusion. A chest drain is inserted and 2 litres of fluid are drained in 20 mins. His breathing settles and a repeat chest x-ray shows good expansion of the left lung and some new infiltrates in the left upper zone. About 3 hours later, he becomes more breathless again.

What is the cause of his new breathlessness?

A.Anxiety

B.Iatrogenic haemothorax

C.Pneumothorax from insertion of the chest drain

D.Re-accumulation of the pleural fluid

E.Re-expansion pulmonary oedema

Answer:Re-expansion pulmonary oedema

Explanation:

If a pleural effusion is drained too quickly, a rare but important complication that can develop is re-expansion pulmonary oedema

Important for meLess important

Anxiety would not explain the new infiltrates in the left upper zone of his chest x-ray.

Iatrogenic haemothorax and pneumothorax would both show up on the chest x-ray, therefore are incorrect.

It is unlikely that the pleural fluid would re-accumulate that quickly over the course of a few hours to cause new breathlessness.

The mechanism of re-expansion pulmonary oedema is thought to be due to lung interstitial damage plus hydrostatic imbalance that occur following rapid expansion of the underlying collapsed lung.

Question:

A 21-year-old man comes for review. He recently had an abdominal ultrasound for episodic right upper quadrant pain which demonstrated gallstones. A full blood count was also ordered which was reported as follows:

Hb 9.8 g/dl

MCV 91 fl

Plt 177 \* 109/l

WBC 5.3 \* 109/l

The patient also mentions that his father had a splenectomy at the age of 30 years.

Which one of the following tests is most likely to be diagnostic?

A.Ham's test

B.PAS staining of erythrocytes

C.Glucose-6-phoshate dehydrogenase levels

D.EMA binding test

E.Direct Coombs' test

Answer:EMA binding test

Explanation:

The EMA binding test should be used to diagnose hereditary spherocytosis - the osmotic fragility test is no longer widely used

Important for meLess important

This patient likely has hereditary spherocytosis (HS) as evidenced by the normocytic anaemia, gallstones and family history. The British Journal of Haematology guidelines state that a clinical diagnosis of HS can sometimes be made for classical histories. However, if the case is more equivocal then a diagnostic test is recommended, such as the EMA binding test.

The EMA binding test uses flow cytometry to determine the amount of fluorescence (reflecting EMA bound to specific transmembrane proteins) derived from individual red cells.

Question:

A patient is brought in to resus by paramedics after being involved in a road traffic collision. The patient is wearing a hard-neck collar and currently has an oropharyngeal airway in place. He does not respond to voice or pain, his eyes are closed and he exhibits a decorticate motor response. What should be done regarding the patient's airway?

A.Keep the oropharyngeal (OP) airway in place

B.Insert a laryngeal mask airway

C.Insert a tracheostomy

D.Insert a cuffed endotracheal tube

E.Insert an i-gel®

Answer:Insert a cuffed endotracheal tube

Explanation:

Intubate if the GCS is less than 8

Important for meLess important

This patient has a GCS of 5 (E1, V1, M3). An OP airway is therefore not sufficient to maintain this patients airway. The most suitable device to maintain this patients airway is a cuffed endotracheal tube.

Keep the OP airway in place - although the patient has been successfully transferred using an OP airway, it is unlikely to be sufficient with such a low GCS. Additionally, it is likely the patient will be taken to surgery and an OP airway would certainly not be sufficient for this.

Insert a laryngeal mask airway - although this would be better than an OP airway, it is associated with a greater risk of aspiration than an endotracheal tube. Hence an endotracheal tube would be more suitable.

Tracheostomy - it would not be appropriate to perform a tracheostomy for such an acute event

Insert an i-gel ® - although this would be better than an OP airway, it is associated with a greater risk of aspiration than an endotracheal tube. Hence an endotracheal tube would be more suitable.

https://www.jove.com/visualize/abstract/19272743/decreased-glasgow-coma-scale-score-does-not-mandate-endotracheal

Question:

A 59-year-old woman in on the medical ward being managed for a community-acquired pneumonia. She has a background of hypertension, type 2 diabetes, osteoarthritis, cataracts and epilepsy.

Around 04:00 she begins to have a seizure. On arrival of the emergency team, IV lorazepam is administered and the seizure terminates, with duration of roughly 6 minutes.

Observations post-seizure: heart rate 96 beats per minute, blood pressure 145/98mmHg, respiratory rate 16 breaths per minute, saturations 100% on 15 litres of oxygen, apyrexial.

A nurse puts in another cannula and takes some blood, but just after this the patient begins seizing again. A further dose of lorazepam is administered and the seizure quickly resolves.

What is the most appropriate next action at this point?

A.Capillary blood glucose

B.Intravenous phenytoin

C.Send bloods as urgent to the lab

D.Start propofol infusion

E.Urgent CT head

Answer:Capillary blood glucose

Explanation:

Status epilepticus: rule out hypoxia and hypoglycaemia before thinking of other causes

Important for meLess important

In a patient having a seizure your approach is two-fold - to both terminate the seizure and to identify any underlying cause.

A capillary blood glucose is a quickly accessible test and is invaluable in assessing for hypoglycaemia. In epileptic seizures it is important to rule out hypoxia and hypoglycaemia before thinking of other causes. This is especially important in this patient who is diabetic.

Although blood results from the lab are important for identifying potential seizure triggers, such as electrolyte abnormalities, they are not the priority compared to oxygenation, checking glucose, and terminating the seizure.

Terminating the seizure is usually done with benzodiazepines, the form depending on the access that is available. This can be repeated after 10 minutes if necessary. If benzodiazepines are unsuccessful, the next step would be to start an anti-epileptic infusion, such as phenytoin.

In this case, there was initial good response to the benzodiazepine which terminated the first seizure. Therefore repeating the lorazepam is appropriate. Although a phenytoin infusion would not be detrimental, it is not necessary at this stage as the seizure has resolved. Plus, checking the blood sugar is a much quicker intervention that may identify the cause of the seizure.

A CT head is a useful investigation in non-epileptic patients presenting with a seizure. However, a CT is not necessarily required in epileptic patients who have a seizure, especially if another precipitant, such as infection or electrolyte abnormality is detected.

Question:

A 52-year-old man attended his GP following two episodes of painless visible haematuria. He was referred to urology for flexible cystoscopy and biopsy, which identified a transitional cell carcinoma of the bladder.

What is considered the most significant risk factor for this condition?

A.Age

B.Exposure to aromatic dyes

C.Long term catheterisation

D.Male sex

E.Smoking

Answer:Smoking

Explanation:

Smoking is the most important risk factor for bladder cancer

Important for meLess important

Smoking is considered the most significant risk factor for transitional cell carcinoma of the bladder. Smokers are thought to be at least 3 times more likely to develop transitional cell carcinoma than non-smokers accounting for more than 50% of cases.

While exposure to aromatic dyes in the paint and textile industry is an important risk factor for bladder cancer, it is far less common than smoking.

While increasing age is associated with more cases of transitional cell carcinoma, this is far outweighed by the effect of smoking, particularly for a long duration.

Long term catheterisation is a risk factor for squamous cell carcinoma of the bladder, not for transitional cell carcinoma.

Sex is not considered a significant risk factor for bladder cancer.

Question:

A 75-year-old woman is admitted to hospital with a 4-day history of severe diarrhoea associated with abdominal pain, fever and malaise. She has not had these symptoms previously.

The patient is usually well but in the last 3 months, she has had a course of both co-amoxiclav and ciprofloxacin for upper urinary tract infections. She has no allergies and takes no regular medications.

Blood tests show a raised white cell count and a stool sample comes back positive for Clostridium difficile toxin.

What is the most appropriate treatment for this patient per national guidelines?

A.A course of intravenous metronidazole

B.A course of intravenous vancomycin

C.A course of oral clindamycin

D.A course of oral vancomycin

E.Conservative management with fluids and rest

Answer:A course of oral vancomycin

Explanation:

Oral vancomycin is the first line antibiotic for use in patients with C. difficile infection

Important for meLess important

This patient has confirmed Clostridium difficile infection. This is an infection of the intestine that typically occurs in patients whose gut flora has been disrupted by recent antibiotic use. The most common causative agents are broad-spectrum antibiotics, such as co-amoxiclav and ciprofloxacin - both of which the patient has recently taken. Treatment involves discontinuing the implicated antibiotic and starting appropriate eradicative therapy. The first-line treatment is oral vancomycin, and this is, therefore, the correct answer. Oral fidaxomicin is an alternative that may be more effective, however, this is less available.

Metronidazole is no longer a first-line antibiotic for Clostridium difficile eradication as it has lower cure rates than vancomycin. Metronidazole may still be used if vancomycin is not available. In these cases, it is usually given orally as Clostridium difficile resides in the colonic lumen and oral metronidazole is as effective as intravenous treatment and easier to administer. A course of IV metronidazole is therefore incorrect.

IV vancomycin is incorrect. When given IV, insufficient quantities of vancomycin are excreted into the gut lumen to deliver an effective dose. Treatment for Clostridium difficile is therefore with oral vancomycin.

Clindamycin is incorrect. It is not an antibiotic that cures Clostridium difficile. Instead, it is an antibiotic that is significantly associated with an increased risk of developing Clostridium difficile.

When Clostridium difficile is symptomatic, it usually will not resolve without treatment and instead may get worse and lead to complications such as toxic megacolon. Treating the patient with conservative management is therefore not recommended.

Question:

A 29-year-old woman presents to the emergency department with palpitations that have now stopped. She presented with the same symptoms last week.

Her heart rate is 80 bpm, blood pressure 110/80 mmHg, respiratory rate is 18 /min and temp 36.5º. Her chest is clear with no additional heart sounds. ECG shows sinus rhythm. Initial blood tests show:

Hb 130 g/L (115 - 160)

Platelets 200 \* 109/L (150 - 400)

WBC 5.4 \* 109/L (4.0 - 11.0)

Thyroid stimulating hormone (TSH) 2.7 mU/L (0.5-5.5)

Free thyroxine (T4) 14 pmol/L (9.0 - 18)

Na+ 136 mmol/L (135 - 145)

K+ 3.6 mmol/L (3.5 - 5.0)

Urea 4.4 mmol/L (2.0 - 7.0)

Creatinine 67 µmol/L (55 - 120)

What is the best next step in her management?

A.Arrange Holter monitoring

B.Arrange outpatient echocardiogram

C.Discharge with safety-netting advice

D.Repeat blood tests in one week at GP

E.Urgent inpatient echocardiogram

Answer:Arrange Holter monitoring

Explanation:

Palpitations should first be investigated with a Holter monitor after initial bloods/ECG

Important for meLess important

Arrange Holter monitoring and follow up is correct. As this patient is presenting with recurrent episodes of palpitations it is appropriate to investigate for a paroxysmal arrhythmia Palpitations may occur secondary to dysrhythmias and should always be assessed with blood tests and an ECG. However, since this patient's symptoms have resolved, it is likely that if any underlying dysrhythmia was present, it has stopped, resulting in a normal ECG. The next step in managing this patient is to arrange Holter monitoring, an ambulatory ECG that continuously monitors for the emergence of any dysrhythmia over 24-72 hours. This will is the current recommendation to identify underlying cardiac issues.

Arrange an outpatient echocardiogram is incorrect. You have not yet found the cause of this patient's palpitations. If dysrhythmia is confirmed from Holter monitoring, then you can consider investigations such as an echocardiogram.

Discharge with safety-netting advice is incorrect. Even though this patient's symptoms have resolved, this would be inappropriate as this may leave a dysrhythmia undiagnosed, which can have potentially serious complications such as cardiac arrest. An episodic dysrhythmia must be ruled out first using Holter monitoring.

Repeat blood tests in one week at GP is incorrect. It would be unlikely that the patient's results will change and repeat tests will not contribute any further information to aid with the diagnosis. The more appropriate step would be Holter monitoring which may identify episodic arrhythmia.

Urgent inpatient echocardiogram is incorrect. Currently, the patient only has palpitations with no evidence of dysrhythmia. You can undertake echocardiography if an arrhythmia is confirmed with Holter monitoring.

Question:

A 21-year-old medical student is referred to the clinic with polyuria and polydipsia. She is concerned she may have developed diabetes after a recent lecture on the topic.

Her only past medical history is anxiety and depression. She takes no regular medications.

Her GP has performed some blood tests.

Na+ 138 mmol/L (135 - 145)

K+ 3.9 mmol/L (3.5 - 5.0)

Urea 3.2 mmol/L (2.0 - 7.0)

Creatinine 66 µmol/L (55 - 120)

Bilirubin 10 µmol/L (3 - 17)

ALP 132 u/L (30 - 100)

ALT 25 u/L (3 - 40)

Albumin 36 g/L (35 - 50)

Calcium 2.99 mmol/L (2.1-2.6)

Phosphate 0.67 mmol/L (0.8-1.4)

Parathyroid hormone (PTH) 6.2 pmol/L (1.6 - 6.9)

Fasting glucose 4.3 mmol/L (3.9 - 5.4)

What is the most likely cause of her symptoms?

A.Diabetes mellitus

B.Hypoparathyroidism

C.Primary hyperparathyroidism

D.Secondary hyperparathyroidism

E.Tertiary hyperparathyroidism

Answer:Primary hyperparathyroidism

Explanation:

The PTH level in primary hyperparathyroidism may be normal

Important for meLess important

It is important to remember that with hypercalcaemia the normal response would be a low PTH. A high or normal PTH in the context of hypercalcaemia usually indicates primary hyperparathyroidism which is the correct answer in this case.

Secondary hyperparathyroidism is incorrect. This is a physiological elevation of PTH levels in response to hypocalcaemia. It is commonly due to renal failure or vitamin D deficiency. The hypercalcaemia here makes this the wrong answer.

Tertiary hyperparathyroidism is also incorrect. It is often seen in patients with end-stage renal failure and is thought to be due to prolonged secondary hyperparathyroidism which results in the inappropriate continued release of PTH despite normalisation of calcium levels.

Diabetes mellitus is not the correct answer, despite the patient's concern. It has been excluded with a normal fasting blood glucose as she would need to have significant hyperglycaemia to cause the osmotic symptoms of polyuria and polydipsia.

There is no evidence of hypoparathyroidism as you would expect to see a low calcium and low PTH with a high phosphate. This is therefore incorrect. There may also be symptoms of hypocalcaemia such as twitching, paraesthesia and tetany.

Question:

A 67-year-old man presents to his general practitioner with a 6 month history of chronic cough, and a first episode of haemoptysis yesterday prompting his presentation. He has a 25 pack year smoking history. Cardiovascular and respiratory exams detect no abnormalities, but his doctor notices he has gained significant weight since his last visit, particularly around the abdomen, while his skin is thinner and more fragile.

A chest X-ray discovers a solitary right lung mass suspicious for cancer.

Which subtype of lung cancer is most likely in this patient?

A.Adenocarcinoma

B.Large cell carcinoma

C.Mesothelioma

D.Small cell lung cancer

E.Squamous cell carcinoma

Answer:Small cell lung cancer

Explanation:

Small cell lung carcinoma secreting ACTH can cause Cushing's syndrome

Important for meLess important

Small cell lung cancers can be responsible for independent secretion of ACTH, causing Cushing's syndrome, as demonstrated by this patient's central weight gain, buffalo hump, moon facies and skin thinning. Small cell lung cancers are frequently responsible for paraneoplastic syndromes including syndrome of inappropriate ADH secretion (SIADH), Lambert-Eaton syndrome and Cushing's syndrome. Cushing's syndrome occurs due to hypercortisolism, and the most common cause is exogenous corticosteroid administration. The term Cushing's disease is reserved for cases involving an ACTH-secreting pituitary adenoma.

Because ACTH secretion from small cell lung cancer is completely independent of the pituitary-adrenal axis, a dexamethasone suppression test will not have any impact on the level of ACTH secretion - distinguishing it from Cushing's disease, which will suppress with dexamethasone.

A dexamethasone suppression test is used to identify the source of hypercortisolism in Cushing's syndrome. In cases of Cushing's disease, while ACTH secretion from a pituitary adenoma is elevated, the pituitary remains responsive to negative feedback from high dose corticosteroid administration - usually 8mg dexamethasone. However, if the source of ACTH secretion is not from the pituitary gland, this feedback loop is not active and ACTH secretion is not suppressed following high dose corticosteroid administration.

This patient would require a CT chest to further characterise the tumour, a biopsy of the mass and potential scans to identify and sites of distant metastasis. Referral to a surgeon and oncologist is advised. Small cell lung carcinoma has a poor prognosis; an early palliative care referral has been shown to improve patient outcomes.

Adenocarcinoma is not associated with paraneoplastic Cushing's syndrome but has been associated with hypertrophic osteoarthropathy (HPOA).

Large cell carcinoma is a relatively uncommon type of non-small cell lung cancer, and has not been associated with specific paraneoplastic syndromes.

Mesothelioma has been associated with asbestos exposure, and may cause symptoms of restrictive lung disease. It has not been associated with specific paraneoplastic syndromes.

Squamous cell carcinoma is associated with the paraneoplastic syndrome relating to hypercalcaemia of malignancy, due to its secretion of parathyroid hormone-related peptide (PTHrP), but not Cushing's syndrome.

Question:

A 33-year-old female presents with pain and stiffness in her right knee, which she’s had for the last 3 months. On further questioning, she also has pain and stiffness in her left wrist and the distal interphalangeal joint of her right index finger. Her symptoms are worse in the morning and seem to improve throughout the day. She reports that her late mother also had joint problems; but does not know the diagnosis, although she recalls that her fingers were completely swollen before she started treatment.

What is the most likely diagnosis?

A.Gonococcal arthritis

B.Psoriatic arthritis

C.Reactive arthritis

D.Rheumatoid arthritis

E.Systemic lupus erythematosus

Answer:Psoriatic arthritis

Explanation:

Inflammatory arthritis involving DIP swelling and dactylitis points to a diagnosis of psoriatic arthritis

Important for meLess important

Psoriatic arthritis is a seronegative spondyloarthropathy, that most commonly presents as an oligoarthritis (usually involving fewer than 3 joints for the first 6 months ). It can involve any joint in the body, but unlike rheumatoid arthritis often affects the distal interphalangeal joints. Other common symptoms of psoriatic arthritis included dactylitis “sausage digit”, inflammation of an entire digit and nail changes such as onycholysis. In 15-20% of cases, symptoms of arthritis are detected before psoriasis appears.

Rheumatoid arthritis typically presents as a symmetrical polyarthritis.

Systemic lupus erythematosus (SLE) is an autoimmune disease which has a wide range of clinical and laboratory features which can be remembered using the pneumonic 'SOAP BRAIN MD'.

'SOAP BRAIN MD'

Serositis: pleurisy or pericarditis

Oral ulcers

Arthritis

Photosensitivity

Blood: anaemia, leukopenia, lymphopenia and thrombocytopenia

Renal disorder: lupus nephritis - minimal mesangial, mesangial proliferative, focal, diffuse, membranous and advanced sclerosis

Antinuclear antibody

Immunology: anti-Smith, anti-ds DNA and antiphospholipid antibody

Neurologic disorder: seizures or psychosis

Malar rash

Discoid rash

Reactive arthritis (Reiter’s syndrome), is inflammatory arthritis that develops in response to an infection. The classic triad of symptoms is inflammatory arthritis of large joints, inflammation of the eyes (conjunctivitis or uveitis), and urethritis/cervicitis.

Reactive arthritis: conjunctivitis/uveitis, urethritis/cervicitis and arthritis 'can't see, can't pee, can't climb a tree'

Gonococcal arthritis is a single or multiple joint septic arthritis caused by disseminated gonococcal infection.

Question:

A 50-year-old man presents with weakness and a change in skin colour. He describes the pain in both hands. He was previously fit and well.

On examination, he has ascites, hepatomegaly and his skin has a bronze tint. There is swelling and tenderness of the second and third metacarpophalangeal joints. Neurological examination and mini-mental exam are normal.

X-rays of the hands are requested, which show chondrocalcinosis. Blood tests are also requested:

Hb 162 g/L Male: (135-180)

Female: (115 - 160)

Platelets 304 \* 109/L (150 - 400)

WBC 7.2 \* 109/L (4.0 - 11.0)

Na+ 138 mmol/L (135 - 145)

K+ 4.2 mmol/L (3.5 - 5.0)

Urea 5.6 mmol/L (2.0 - 7.0)

Creatinine 88 µmol/L (55 - 120)

Glucose 11.2 mmol/L (4.0 - 5.5)

Given the likely diagnosis, which of the following is the most useful initial screening test?

A.Caeruloplasmin

B.Ferritin

C.Genetic testing

D.Liver biopsy

E.Transferrin saturation

Answer:Transferrin saturation

Explanation:

Screening for haemochromatosis

general population: transferrin saturation > ferritin

family members: HFE genetic testing

Important for meLess important

The correct answer is transferrin saturation. The diagnosis here is haemochromatosis, given the presentation and investigations - the bronze tint to the skin, chondrocalcinosis of the finger joints, raised glucose suggesting iron deposition in the pancreas, and liver disease suggesting iron deposition in the liver too. In the general population, transferrin saturation is considered the most useful marker initially. Ferritin is often also measured but is not as sensitive. If the transferrin saturation indicates a diagnosis of haemochromatosis, genetic testing may then be undertaken.

Caeruloplasmin is incorrect. This would be used to screen for Wilson's disease, a metabolic disorder involving the build-up of copper. While there are some similarities in presentation with haemochromatosis, like liver disease, Wilson's disease would present with neuropsychiatric signs and symptoms, too - whereas this patient's neurological and psychiatric examinations were normal.

Ferritin is also often used as an initial screening test. However, it is not as sensitive as transferrin saturation, which is thus more useful.

Genetic testing is the definitive test for haemochromatosis - looking for the C282Y and H63D mutations. However, the question asks about the most useful initial screening test. Genetic testing is also the test of choice for family members.

Liver biopsy is useful to determine liver iron content using Perl's stain. It is both sensitive and specific. It would not, however, be used initially.

Question:

A 5-year-old child presents to the emergency department complaining of right iliac fossa pain. On examination there is no rebound tenderness or guarding. Urine dipstick and routine bloods come back as normal. The mother reports that her daughter had a viral infection a few days ago.

What's the most likely diagnosis?

A.Pyelonephritis

B.Meckel's diverticulum

C.Appendicitis

D.Mesenteric adenitis

E.Intussusception

Answer:Mesenteric adenitis

Explanation:

Appendicitis would present with abdominal tenderness and guarding.

Pyelonephritis wouldn't have a negative urine dipstick.

Intussusception is more likely in babies less than 9 months and causes a severe colic pain.

Meckel's diverticulum would present similarly to appendicitis with severe pain and most commonly affects children aged 2.

Question:

A 65-year-old man is referred to the medical admissions unit with 3 days of painless jaundice. He has a past medical history of Crohn's disease.

On examination, he is visibly jaundiced. The abdominal examination is normal.

Blood tests:

Bilirubin 121 µmol/L (3 - 17)

ALP 445 u/L (30 - 100)

ALT 100 u/L (3 - 40)

γGT 623 u/L (8 - 60)

Albumin 38 g/L (35 - 50)

A CT abdomen is arranged, which demonstrates simultaneous dilatation of the common bile duct and pancreatic ducts.

What is the most likely diagnosis?

A.Cholangiocarcinoma

B.Choledocholelithiasis

C.Pancreatic cancer

D.Primary biliary cirrhosis

E.Primary sclerosing cholangitis

Answer:Pancreatic cancer

Explanation:

The 'double duct' sign may be seen in pancreatic cancer

Important for meLess important

Pancreatic cancer is the correct answer. The patient presents with painless jaundice and dilatation of the pancreatic duct and common bile ducts. These findings suggest a diagnosis of either cholangiocarcinoma or pancreatic cancer. Pancreatic cancer is far more common than cholangiocarcinoma and therefore is the most likely diagnosis.

Cholangiocarcinoma is incorrect. This can also cause painless obstructive jaundice and if it involves the distal CBD then it can cause the 'double duct' sign. However, it is far less common than pancreatic cancer and therefore less likely.

Choledocholelithiasis is incorrect. This is another cause of dilatation of the common bile duct and pancreatic ducts i.e. the 'double duct' sign. However, in the setting of co-existent jaundice, pancreatic cancer has been shown to be more common than gallstones.

Primary biliary cirrhosis is incorrect. This cause intra-hepatic duct dilatation rather than extra-hepatic duct dilatation and is therefore not a cause of the 'double duct' sign.

Primary sclerosing cholangitis is incorrect. This condition can cause jaundice. However, it is another cause of intra-hepatic rather than extra-hepatic duct dilatation and therefore is not a cause of the 'double duct' sign. It is typically associated with ulcerative colitis rather than Crohn's disease.

Question:

A 61-year-old man presents to his GP with recurrent falls over the past few months. He reports that his legs feel weak and he has recently had difficulty doing up the buttons on his shirt. He reports no other symptoms and is otherwise well. His past medical history includes hypertension for which he takes amlodipine. On examination, he demonstrates bilateral foot drop with a high stepping gait. Power is reduced throughout both upper and lower limbs. Reflexes were brisk in the upper limbs but the knee and ankle reflexes could not be elicited. He demonstrated upgoing plantars. Coordination and sensation were intact throughout.

What is the most likely diagnosis?

A.Guillain-Barre syndrome

B.Amyotrophic lateral sclerosis

C.Cervical spondylotic myelopathy

D.Charcot-Marie-Tooth disease

E.Lambert-Eaton myasthenic syndrome

Answer:Amyotrophic lateral sclerosis

Explanation:

Amyotrophic lateral sclerosis is associated with mixed UMN and LMN signs (usually no sensory deficits)

Important for meLess important

Amyotrophic lateral sclerosis (ALS) is a type of motor neurone disease (MND). Degeneration of neurones in the motor cortex and in the ventral spinal cord produces mixed UMN and LMN signs. There are no associated sensory deficits.

Guillain-Barre syndrome (GBS) is an inflammatory peripheral neuropathy so will not present with upper motor neurone signs. There is nothing in the history to suggest a recent bacterial or viral infection. GBS is often accompanied by sensory disturbances (both motor and sensory nerves of the peripheral nervous system are attacked by the immune system).

Cervical spondylotic myelopathy – cervical spondylosis is the term used for osteoarthritis of the spine and can result in compression of the spinal cord. This is more likely to result in LMN signs at the level of the compression (ie. upper limb if the lesion is below C5) with UMN signs below (in the lower limb). Patients usually complain of neck pain and stiffness.

Charcot-Marie-Tooth syndrome – a hereditary sensory and motor peripheral neuropathy. UMN signs are not present in these patients. Patients can present with lower motor neurone signs in all limbs and reduced sensation (more pronounced distally).

Lambert-Eaton myasthenic syndrome – a rare autoimmune disorder involving the neuromuscular junction, so UMN signs will be absent. This condition is associated with small-cell lung cancer.

Question:

A 59-year-old man with no significant past medical history is admitted to hospital following an ischaemic stroke. He presented outside of the thrombolysis window and is treated with aspirin for the first few days. His blood pressure is 130/80 mmHg, fasting glucose is 5.6 mmol/l and fasting cholesterol is 3.9 mmol/l. He makes a good recovery and has regained nearly all of his previous functions upon discharge. Following recent NICE guidelines, which of the following medications should he be taking upon discharge (i.e. after 14 days)?

A.Aspirin + statin

B.Aspirin + dipyridamole + statin + ramipril

C.Clopidogrel + statin

D.Aspirin + dipyridamole

E.Aspirin + dipyridamole + statin

Answer:Clopidogrel + statin

Explanation:

Question:

A 52-year-old woman is referred to the Acute Medical Unit after developing progressive dyspnoea over the past 4 weeks. She has no significant past medical history of note.

On examination her respiratory rate is 18/min, pulse 84/min, blood pressure 102/64 mmHg and oxygen saturations 96% on room air. Temperature is 37.1ºC.

A chest x-ray is performed:

© Image used on license from Radiopaedia

What is the most appropriate initial management?

A.Insert a 26F chest drain after performing a thoracostomy

B.Arrange a high resolution CT chest

C.Prescribe intravenous antibiotics

D.Insert a 18F chest drain using the Seldinger technique

E.Pleural aspiration

Answer:Pleural aspiration

Explanation:

The first step in the management of this patient is pleural aspiration, preferably under ultrasound guidance. This will help guide further management and determine the aetiology of the effusion. There is no need for immediate chest drain insertion as she is stable.

The x-ray shows a large left-sided pleural effusion. The meniscus is well demonstrated on the superolateral aspect indicating fluid in the pleural space. The effusion is causing midline shift.

Question:

A 65-year-old man undergoes a colonoscopy following a positive qFIT test. He is found to have a T3, N0, M0 tumour of his upper rectum. As part of his management, he receives a short course of radiotherapy.

What is the most commonly performed operation for this patient's diagnosis?

A.Abdomino-perineal excision of rectum

B.Anterior resection

C.Hartmann's procedure

D.Left hemicolectomy

E.Right hemicolectomy

Answer:Anterior resection

Explanation:

Anterior resection is the most commonly performed operation for rectal tumours, except in lower rectal tumours

Important for meLess important

This patient has a tumour of the upper rectum. An anterior resection is the operation most commonly performed for rectal tumours, apart from lower rectal tumours which are excised using an abdomino-perineal excision of the rectum.

An abdomino-perineal excision of rectumis a type of resection performed for tumours of the anal verge.

A Hartmann's procedure is a resection of the rectosigmoid colon and closure of the anorectal stump with an end colostomy being formed. This is not used for upper rectal tumours.

A left hemicolectomy is performed for cancers of the distal transverse and descending colon and not for upper rectal tumours.

Cancers of the caecum, ascending, or proximal transverse colon, would be indications for a right hemicolectomy. An upper rectal tumour would not be an indication for this operation.

Question:

A 70-year-old man presents with his wife to the GP. You notice he is very unsteady when he enters the consultation room. His wife is very concerned about his recent behaviour changes and states his memory has deteriorated, often forgetting names and places. He once left the hob on because he forgot to turn it off and when his wife found him, he had wet himself while sitting in his armchair.

What diagnosis would best explain the history?

A.Alzheimer's dementia

B.Lewy body dementia

C.Multiple system atrophy

D.Normal pressure hydrocephalus

E.Parkinson's disease

Answer:Normal pressure hydrocephalus

Explanation:

Urinary incontinence + gait abnormality + dementia = normal pressure hydrocephalus

Important for meLess important

Normal pressure hydrocephalus is the correct answer. The patient presents with cardinal features of normal pressure hydrocephalus: urinary incontinence, gait abnormality and dementia.

Alzheimer's dementia may be considered due to the patient's memory deterioration. However, the additional signs of gait abnormality and urinary incontinence are more in keeping with normal pressure hydrocephalus.

Lewy body dementia is incorrect. This condition presents with dementia as well as psychiatric symptoms, the most common of which are hallucinations. The patient in this case has no hallucinations.

Multiple system atrophy is a Parkinson's plus condition. Thus, the condition shares many of the core features of Parkinson's disease (tremor, rigidity, bradykinesia) as well as additional symptoms. The additional symptoms of multiple system atrophy are autonomic dysfunction which can include urinary incontinence and postural hypotension. In this question, the patient does not present with the primary features of tremor or bradykinesia.

Parkinson's disease is incorrect. There is no mention in the question of the cardinal features of Parkinson's disease (tremor, rigidity and bradykinesia).

Question:

An 18-year-old man presents to the GP with a 4-day history of a red, irritated left eye with associated wateriness and discharge. In the morning, he feels his eyes are matted shut and has noticed thick yellowish mucoid material. He denies any exposure to anyone who has been ill or had any similar symptoms and has not had a recent upper respiratory tract infection.

There is a past medical history of allergic rhinosinusitis, asthma, and eczema, and he takes loratadine, a salbutamol inhaler, a beclometasone inhaler, and topical emollients. He wears contact lenses.

What is the most likely diagnosis?

A.Allergic conjunctivitis

B.Bacterial conjunctivitis

C.Blepharitis

D.Keratitis

E.Viral conjunctivitis

Answer:Bacterial conjunctivitis

Explanation:

A bacterial conjunctivitis is associated with a purulent discharge

Important for meLess important

Bacterial conjunctivitis is correct. This patient has signs and symptoms consistent with conjunctivitis, as he has sore, red eyes with associated stickiness (which patients often experience as their eyes sticking shut in the morning). There are no red-flag features such as headache, photophobia, or anisocoria. He has had purulent discharge from his eyes (described as thick yellowish mucoid material) which is associated with bacterial conjunctivitis.

Allergic conjunctivitis is incorrect. Although the patient has an increased risk of allergic conjunctivitis due to their history of atopy (allergic rhinitis, asthma, and eczema), this tends to present with bilateral itchy red eyes and swollen eyelids. The signs and symptoms in this question have only lasted for 4 days and have not included anything about seasonal variation or any triggers, and with the patient taking loratadine (a systemic antihistamine), this would be less likely to be the cause. As well as this, purulent discharge is more suggestive of bacterial conjunctivitis than allergic conjunctivitis.

Blepharitis is incorrect. Although this can cause eye grittiness and sticky eyelids, the symptoms are usually bilateral and eyelid margins are swollen. There is no mention of eyelid swelling or discomfort, and blepharitis is not typically associated with purulent discharge. The combination of symptoms and purulent discharge is more suggestive of bacterial conjunctivitis.

Keratitis is incorrect. Although contact lens use is associated with keratitis, it tends to present with painful red eyes, photophobia, and eye grittiness. There is no mention of photophobia or eye pain, nor is there any mention of examination findings that may be present (such as hypopyon or corneal ulcers). The combination of symptoms and purulent discharge is more suggestive of bacterial conjunctivitis.

Viral conjunctivitis is incorrect. Although this patient has signs and symptoms that may overlap with viral conjunctivitis, this is associated with serous (watery) discharge, rather than purulent discharge that is seen in bacterial conjunctivitis. As well as this, patients with viral conjunctivitis often have a history of a recent upper respiratory tract infection and pre-auricular lymphadenopathy, neither of which this patient has.

Question:

A 92-year-old lady is being visited by the district nurses. She has developed a grade 2 pressure ulcer on her right buttock over which she is quite tender. On examination her temperature is 36.5ºC, there are no signs of cellulitis and there is no exudate. The area around the ulcer is erythematous but is not warm to touch.

Given her presentation what is the most appropriate management of this patient?

A.Wound dressing

B.Wound dressing, Analgesia, Nutritional assessment

C.Analgesia, Oral Antibiotics, Nutritional assessment

D.Wound dressing, Analgesia, IV Antibiotics, Nutritional assessment

E.Wound dressing, Analgesia, Oral Antibiotics, Nutritional assessment

Answer:Wound dressing, Analgesia, Nutritional assessment

Explanation:

Do not routinely use antibiotics in pressure ulcer treatment, only if there are signs of infection

Important for meLess important

This question is asking about a 92-year-old woman with a pressure ulcer on her right buttock. A grade 2 pressure ulcer indicates that there has been partial thickness skin loss involving epidermis or dermis and thus she will require management.

In the management of pressure ulcers, all patients require wound dressings, appropriate analgesia, and a nutritional assessment. This means that option 3 is correct.

NICE suggest that all patients with a pressure ulcer should get a 'nutritional assessment by a dietitian or other healthcare professional with the necessary skills and competencies'.

Antibiotics can be necessary in certain cases, however, they should be limited to patients with signs/symptoms of infection. This patient has a normal temperature as well as no signs of infection in the wound itself such as purulent discharge and therefore do not require either oral or IV antibiotics.

NICE suggest that indications for antibiotic use are as follows:

clinical evidence of systemic sepsis

spreading cellulitis

underlying osteomyelitis.

Question:

A 72-year-old man is having an elective trans-urethral resection of prostate (TURP) for benign prostatic hyperplasia under spinal anaesthesia. Forty minutes into the procedure he develops headache and visual disturbances. A venous blood gas is sent off, and the main abnormality noted is severe hyponatremia.

What is the cause of this presentation?

A.Irrigation with glycine

B.Oxygen deprivation

C.Side effect of spinal anaesthesia

D.Too much intravenous normal saline

E.Vasovagal response

Answer:Irrigation with glycine

Explanation:

Irrigation with glycine during a TURP causes TURP syndrome

Important for meLess important

This scenario describes a trans-urethral resection of prostate (TURP) syndrome. It is a complication of TURP presenting with central nervous system (CNS), respiratory and systemic symptoms. It is caused by irrigation with large volumes of glycine, which is hypo-osmolar, and is systemically absorbed when prostatic venous sinuses are opened up during prostate resection. This results in hyponatremia. When glycine is broken down by the liver into ammonia it causes hyper-ammonia and visual disturbances.

TURP syndrome can occur under general anaesthesia or spinal anaesthesia - it does not occur as a side effect of spinal anaesthesia.

Vasovagal response can cause visual disturbances, but do not cause hyponatremia or TURP syndrome.

Oxygen deprivation and hypoxia can also cause headaches and visual disturbances. However, it does not cause hyponatremia or TURP syndrome.

Too much intravenous normal saline would cause hypernatremia rather than the hyponatremia typically seen in TURP syndrome. Therefore this is not the correct answer.

Question:

A 58-year-old man attends his GP to discuss the results of recent investigations. He had reported hoarseness for over 3 weeks with nil other symptoms. He is a current smoker with a 30 pack year history. There are no signs of infection on examination of throat and chest. His chest x-ray which was performed last week has been reported as normal.

Which one of the following is the most appropriate next action?

A.Refer to respiratory to bronchoscopy

B.Prescribe a seven day course of amoxicillin

C.Refer urgently to ENT (Ear Nose and Throat) for further assessment

D.Provide reassurance only

E.Refer routinely to ENT (Ear Nose and Throat) for further assessment

Answer:Refer urgently to ENT (Ear Nose and Throat) for further assessment

Explanation:

NICE published guidance in 2015 on the recognition of and referral for suspected cancer in children, young people and adults.

They recommend that clinicians consider a suspected cancer pathway referral (for an appointment within 2 weeks) for laryngeal cancer in people aged 45 and over with:

persistent unexplained hoarseness or

an unexplained lump in the neck

Persistent hoarseness in a smoker should raise suspicion of both lung cancer and laryngeal cancer.

A normal chest x-ray does not rule out the diagnosis of a lung malignancy but with symptoms of hoarseness alone, bronchoscopy may not be immediately indicated. Prescribing antibiotics is not warranted as there is no indication of infection. The persistence of the hoarseness means reassurance only would not be sufficient and investigation is required. However, an urgent as opposed to a routine referral to ENT is most appropriate for this to take place.

Question:

A two-week-old preterm baby girl is brought into the paediatric assessment unit by her mother, who is concerned that over the last 3 days she is becoming increasing lethargic and refusing to feed.

Observations are respiratory rate 66 breaths/min, oxygen saturations 95% on air, heart rate 178bpm, blood pressure 64/48 mmHg and temperature 36.5ºC.

Examination is unremarkable except for lethargy and signs of dehydration.

What is the most likely diagnosis?

A.Bronchiolitis

B.Cow's milk protein intolerance

C.GORD

D.Galactoseamia

E.Neonatal sepsis

Answer:Neonatal sepsis

Explanation:

Neonatal sepsis should be considered in infants with vague signs such as poor feeding, grunting, lethargy

Important for meLess important

Bronchiolitis is possible however it would typically yield more specific signs such as cough, wheeze or crackles on examination.

Cow's milk protein intolerance is unlikely to cause such systemic upset and would usually present with gastrointestinal upset and itching or atopy.

GORD is common in infants however would not make the child this unwell and usually the mother would have witnessed some regurgitation of feed.

Galactoseamia is unlikely as it usually presents within the first few days of life and examination would reveal jaundice.

Neonatal sepsis is the most likely diagnosis and should be considered in all infants with vague signs as poor feeding, grunting or lethargy.

Question:

A 72-year-old man presents to his general practitioner with new-onset constipation. This started about a week ago and coincided with the onset of regular stomach cramps. His wife reports that he has also been increasingly confused in the past few days, and has been very drowsy and lethargic, with weak muscles.

His past medical history is only significant for hypertension, for which he takes regular amlodipine, atenolol, bendroflumethiazide, and ramipril. He has taken over-the-counter macrogol in the past 7 days to try and help with his constipation.

Given the likely cause of his presentation, which medication could have this side effect?

A.Amlodipine

B.Atenolol

C.Bendroflumethiazide

D.Macrogol

E.Ramipril

Answer:Bendroflumethiazide

Explanation:

Thiazide diuretics can cause hypercalcaemia and hypocalciuria

Important for meLess important

This man's constellation of symptoms may seem puzzling at first, but it should be recognised as the complications of hypercalcaemia. The common mnemonic for hypercalcaemia, and the resulting symptoms, are shown in the table below.

Symptoms

Stones Kidney or biliary stones

Bones Bony pain

Groans Abdominal pains

Thrones Constipation or frequent urination

Tones Muscle weakness and hyporeflexia

Psychiatric moans Depression, anxiety, confusion

Bendroflumethiazide is a thiazide diuretic that can cause hypercalcaemia, as well as hyponatraemia, hypokalaemia and hypomagnesaemia.

Amlodipine is a calcium channel blocker that could cause side effects of abdominal pain and depression but is unlikely to explain all of the man's symptoms.

Atenolol is a beta-blocker that can cause hyponatremia and hyperkalemia but does not affect calcium levels. It is also more likely to cause diarrhoea than constipation.

Macrogol is a laxative that may explain his abdominal pain, but would not explain his lethargy, drowsiness, or muscle weakness.

Ramipril is an angiotensin-converting enzyme (ACE) inhibitor that may cause hyperkalaemia but is not known to affect calcium levels. It would not account for any of the other symptoms. Common side effects include cough or angioedema.

Question:

A 4-week-old child is brought to clinic with a red rash on her scalp associated with yellow flakes. What is the most likely diagnosis?

A.Irritant contact dermatitis

B.Seborrhoeic dermatitis

C.Psoriasis

D.Atopic eczema

E.Candidiasis

Answer:Seborrhoeic dermatitis

Explanation:

Question:

A 32-year-old man with type 2 diabetes mellitus attends the GP surgery following an episode of feeling sweaty, dizzy and confused yesterday.

At his last check, 3 weeks ago, his HbA1c was found to be 62 mmol/mol. He was already taking metformin and so he was started on a second medication to treat his diabetes.

What medication was started in this patient?

A.Exenatide

B.Gliclazide

C.Liraglutide

D.Pioglitazone

E.Sitagliptin

Answer:Gliclazide

Explanation:

An important side effect of sulfonylureas is hypoglycaemia

Important for meLess important

This man has suffered an episode of hypoglycaemia. Gliclazide is a sulfonylurea and has a risk of causing hypoglycaemia. Other important side effects include cholestatic liver dysfunction, increased appetite and weight gain and gastrointestinal disturbance.

Additional medication should be considered if the HbA1c rises or still exceeds 58mmol/mol after monotherapy with metformin. Second-line agents to be considered in addition to metformin include:

Sulfonylureas e.g. gliclazide, glimepiride

Dipeptidyl peptidase 4 (DPP-4) inhibitors e.g. gliptins

Thiazolidinediones e.g. pioglitazone

Sodium-glucose co-transporter-2 (SGLT-2) inhibitors e.g. gliflozins

Exenatide is a glucagon-like peptide 1 (GLP-1) mimetic. This medication does not cause hypoglycaemia but has been linked to severe pancreatitis in some patients. Exenatide and other GLP-1 mimetics would not have been used in the next step of treatment for this patient. GLP-1 mimetics are used when triple therapy is ineffective, not tolerated or contraindicated.

Liraglutide is also a GLP-1 mimetic. This medication does not cause hypoglycaemia and would not have been the next-line treatment for this patient.

Pioglitazone is a thiazolidinedione and does not cause hypoglycaemia. Important side effects include weight gain, fractures, fluid retention and liver dysfunction.

Sitagliptin is a DPP-4 inhibitor and does not cause hypoglycaemia. The main side effect of DPP-4 inhibitors is pancreatitis.

Question:

You are seeing an 18-month-old boy in primary care with his mum. Over the last 72 hours, he has had on and off temperatures (up to 37.8ºC) and has been generally unsettled. However, he has been managing to eat and drink reasonably well.

Mum has noticed that he has been pulling a lot on his left ear.

On examination, he seems settled, and observations are as follows:

Temperature 37.1ºC

Heart rate 110 beats/min

Respiratory rate 24 breaths/min

On autoscopy, you find a small perforation of his left tympanic membrane with a small amount of pus is visible in the external canal. His right tympanic membrane looks intact, with a small effusion visible behind it.

What is the most appropriate management given the information above?

A.Discuss with the on call ENT team

B.Reassure, advise simple analgesia and review again after 2-3 weeks

C.Prescribe a 7 day course of Otomize spray (containing neomycin/dexamethasone/acetic acid)

D.Prescribe a 7 day course of amoxicillin

E.Reassure and review again in 12-16 weeks to ensure the perforation has healed

Answer:Prescribe a 7 day course of amoxicillin

Explanation:

Oral antibiotics should be given in acute otitis media with perforation

Important for meLess important

The correct answer is to prescribe a 7-day course of amoxicillin.

Most cases of otitis media are self-limiting and resolve within a few days' time with simple analgesia.

NICE advise that antibiotics may be beneficial in certain situations including bilateral infection in children under 2, otorrhoea, perforated tympanic membrane and symptoms not improving after 3 days.

Whilst this boy appears well at the surgery he has signs of ongoing and bilateral infection and has had on and off fevers for 3 days now. From the options, giving a 7-day course of amoxicillin is the most appropriate option.

Most tympanic membrane perforations heal within 4-8 weeks and (particularly in young children) it is good practice to re-examine them after a few weeks time to ensure the tympanic membrane has healed. However, you should do this earlier than 12-16 weeks.

Tympanic membrane perforation is a common complication of otitis media and does not need a discussion with ENT routinely and can usually be managed in the community.

Otomize is used in otitis external and should not be used if there is a tympanic membrane perforation as aminoglycosides (such as neomycin) are ototoxic.

Question:

A 69-year-old man is started on tamsulosin for benign prostatic hyperplasia. Which one of the following best describes the side-effects he may experience?

A.Urgency + insomnia

B.Dizziness + postural hypotension

C.Urinary retention + nausea

D.Urgency + erectile dysfunction

E.Erectile dysfunction + reduced libido

Answer:Dizziness + postural hypotension

Explanation:

Question:

A 44-year-old woman is reviewed by her GP. Three weeks ago, she was diagnosed with Bell's palsy after presenting with left-sided facial weakness. She was prescribed a 10-day course of oral prednisolone and appropriate eye care advice.

Unfortunately, she has not noticed any improvement in her symptoms in the last 3 weeks. On examination, she appears well but has an ongoing left-sided facial weakness with no forehead sparing. The remainder of her cranial nerve examination is normal and there is no evidence of middle ear disease.

What is the most appropriate next step?

A.Continue monitoring and reassure patient that symptoms can take up to 3 months to resolve

B.Prescribe a further 10 day course of prednisolone

C.Refer urgently to ear, nose and throat (ENT) specialist

D.Refer urgently to plastic surgeon

E.Treat with oral aciclovir

Answer:Refer urgently to ear, nose and throat (ENT) specialist

Explanation:

For a patient with a Bell's palsy, if the paralysis shows no sign of improvement after 3 weeks, refer urgently to ENT

Important for meLess important

Refer urgently to ENT specialist is the correct answer. NICE guidelines recommend that patients who show no symptom improvement after 3 weeks following treatment should be referred urgently to a facial nerve specialist, which would either be an ENT specialist or a neurologist. This would facilitate further investigation (including neuroimaging) into other causes of facial weakness.

Reassuring the patient that symptoms can take up to 3 months to resolve is incorrect. While the statement with regards to the prognosis of Bell's palsy is correct, this would only be appropriate advice if the symptoms had begun to show signs of improvement. Where there has been no improvement, the patient must be referred to a specialist for further assessment.

Prescribing a further 10 day course of prednisolone is incorrect. If there has been no response to the initial course, it is unlikely that a further course of corticosteroids will be effective and this strategy is not endorsed by national guidelines.

Referring urgently to a plastic surgeon is incorrect. It may be appropriate to refer to a specialist for consideration of facial reconstructive surgery, but usually only if there is residual paralysis after a longer length of time (e.g. 6 months).

Treating with oral aciclovir is incorrect. Antivirals are not routinely recommended in the acute treatment of Bell's palsy and certainly would not be appropriate after 3 weeks of symptoms.

Question:

A 75-year-old woman with a history of hypothyoidism is admitted to the Emergency Department following an episode of chest pain. She is diagnosed as having an acute coronary syndrome and iron-deficiency anaemia. A percutaneous coronary intervention is performed and a coronary artery stent is inserted. Endoscopies of the upper and lower gastrointestinal tract are performed and reported as normal. She is discharged on the following drugs in addition to her regular levothyroxine: aspirin, clopidogrel, ramipril, lansoprazole, simvastatin and ferrous sulphate. Six weeks later she complains of feeling tired all the time. Her GP arranges some routine blood tests:

Hb 11.9 g/dl

Platelets 155 \* 109/l

WBC 5.2 \* 109/l

Free T4 8.1 pmol/l

TSH 8.2 mu/l

Prior to her recent admission the TSH has been within range for the past two years. Which one of the following new drugs most likely explains the raised TSH?

A.Simvastatin

B.Clopidogrel

C.Ferrous sulphate

D.Ramipril

E.Lansoprazole

Answer:Ferrous sulphate

Explanation:

Iron / calcium carbonate tablets can reduce the absorption of levothyroxine - should be given 4 hours apart

Important for meLess important

Question:

Tom is an 8-year-old boy with known sickle cell disease who presents with very mild pain in his lower back for 2 days. His observations include a blood pressure of 95/60 mmHg, heart rate of 108 bpm, respiratory rate of 32/min and a temperature of 38.1 degrees centigrade. The examination is normal and there is no obvious source of infection. He is in mild pain and is already taking regular paracetamol and ibuprofen. What would be the correct management?

A.Admit urgently

B.Urgent bloods and review tomorrow

C.Prescribe regular codeine and review in 1 week

D.Prescribe Oramorph and review tomorrow

E.Dip urine and prescribe oral antibiotics if positive

Answer:Admit urgently

Explanation:

The correct answer is to urgently admit the patient.

NICE Clinical Knowledge summaries state with regard to sickle cell disease in children:

Admit all people with clinical features of a sickle cell crisis to hospital unless they are:

A well adult who only has mild or moderate pain and has a temperature of 38°C or less.

A well child who only has mild or moderate pain and does not have an increased temperature.

This is based on the recommendation that a fever with no identified source associated with a sickle cell crisis needs bloods and cultures taken to look for the possible source of infection and early treatment as there is a higher risk of severe infections due to hyposplenism.

Other indications for admission in children with sickle cell disease are:

Consider admission if the person presents with a fever but is otherwise generally well.

Admission is not necessarily required if the source of infection is obvious (such as a viral illness) and can be managed in the community.

Have a low threshold for admission:

In a child.

If the person has a temperature over 38°C (as there is a risk of rapid deterioration).

If the person has chest symptoms (as acute chest syndrome may develop quickly).

Make sure that the person with chest symptoms and their family understand the importance of seeking urgent medical advice if their clinical state deteriorates, especially if breathing becomes faster or more laboured.

Whenever possible, admit the person to the specialist centre that has their records.

Reference

Sickle Cell Disease NICE CKS http://cks.nice.org.uk/sickle-cell-disease#!scenario:1

Question:

Each one of the following is a cause of a mydriatic pupil, except:

A.Third nerve palsy

B.Atropine

C.Holmes-Adie pupil

D.Argyll-Robertson pupil

E.Traumatic iridoplegia

Answer:Argyll-Robertson pupil

Explanation:

Argyll-Robertson pupil is one of the classic pupillary syndromes. It is sometimes seen in neurosyphilis. Typically the pupil accommodates but doesn't react. A mnemonic used for the Argyll-Robertson Pupil (ARP) is Accommodation Reflex Present (ARP) but Pupillary Reflex Absent (PRA)

Features

small, irregular pupils

no response to light but there is a response to accommodate

Causes

diabetes mellitus

syphilis

Question:

A 66-year-old woman presents to her general practitioner with a six month history of poorly-localised abdominal discomfort and a constant feeling of bloatedness. Abdominal and pelvic examination is normal. The GP was initially concerned about bowel malignancy and referred her for colonoscopy, which ruled this out. The consultant gastroenterologist who performed the colonoscopy suggested that her symptoms might indicate irritable bowel syndrome. The patient has no history of digestive disorders. What should the GP's next step be?

A.Watch and wait to see whether the symptoms resolve

B.Measure serum CA125 level

C.Treat as irritable bowel syndrome for now and review in one month

D.Refer directly to gynaecology

E.Refer for abdominal and pelvic ultrasound

Answer:Measure serum CA125 level

Explanation:

In a woman of this age with persistent symptoms of abdominal discomfort and bloating it is essential to consider the possibility of ovarian cancer. Due to the non-specific nature of symptoms of this disease, you should have a low threshold for initiating investigations. Serum CA125 is a tumour marker that is used in the investigation of possible ovarian cancer, though it is not 100% sensitive or specific for this disease.

NICE guidelines state that serum CA125 should be performed if a woman - especially if aged 50 years old or over - has any of the following symptoms on a regular basis:

abdominal distension or 'bloating'

early satiety or loss of appetite

pelvic or abdominal pain

increased urinary urgency and/or frequency

The guidelines also note that irritable bowel disease rarely presents for the first time in women aged 50 and over, so any symptoms suggestive of IBD should prompt appropriate tests for ovarian cancer as these two conditions can present in a similar manner.

If serum CA125 is raised then an ultrasound of the abdomen and pelvis should be arranged. If this is suggestive of malignancy then urgent referral must be arranged.

These investigations may be bypassed and a direct referral to gynaecology made if physical examination identifies ascites and/or a suspicious abdominal or pelvic mass.

(NICE CG122)

Question:

A 13-month-old girl is referred to paediatrics by her GP due to concerns that she is still not attempting to 'pull to stand'. She was born at 29 weeks by emergency cesarean section due to foetal bradycardia and weighed 1.1kg at birth.

On examination, she appears healthy and engaged. She responds to her name and has 7 meaningful words. She can drink from a cup using both hands. When put on the floor, she commando crawls to move around. Upper limb tone is normal however lower limb tone is significantly increased.

Based on this patient's symptoms, in which part of the brain/nervous system has damage occurred?

A.Lower motor neurons in the cerebellum

B.Lower motor neurons in the periventricular white matter

C.Lower motor neurons in the pyramidal tracts

D.Upper motor neurons in the cerebellum

E.Upper motor neurons in the periventricular white matter

Answer:Upper motor neurons in the periventricular white matter

Explanation:

Spastic cerebral palsy results from damage to upper motor neurons

Important for meLess important

Upper motor neurons in the periventricular white matter is the likely location for the lesions causing this patient's symptoms. This child has spastic diplegia, a form of cerebral palsy most commonly secondary to periventricular leukomalacia, a condition occurring more frequently in premature infants. Necrosis of the white matter in the fragile area surrounding the lateral ventricles causes upper motor neuron lesions resulting in the spasticity seen in this patient's lower limbs.

Lower motor neurons in the cerebellum and lower motor neurons in the periventricular white matter are incorrect as neither of these areas contains lower motor neurons. Furthermore, hypertonia is consistent with an upper motor neuron lesion rather than a lower motor neuron.

To note, spastic type cerebral palsy is caused by damage to the pyramidal tracts hence may be referred to as pyramidal cerebral palsy. However, the cause would be an upper motor neuron lesion making lower motor neurons in the pyramidal tracts an incorrect answer.

Lesions to the upper motor neurons in the cerebellum would result in ataxic type cerebral palsy. As with spastic cerebral palsy, there is generally motor delay but it would also present with hypotonia (as opposed to hypertonia), varying signs of ataxia (e.g. dysarthria, dysdiadochokinesia, sometimes nystagmus, etc.), impaired balance and coordination, intention tremors, and a wide-based gait (in walking patients).

Question:

A 62-year-old female is referred due to a long-standing ulcer above the right medial malleolus. Ankle-brachial pressure index readings are as follows:

Right 0.95

Left 0.95

To date it has been managed by the District Nurse with standard dressings.

What is the most appropriate management to maximize the likelihood of the ulcer healing?

A.Compression bandaging

B.Intermittent pneumatic compression

C.Hydrocolloid dressings

D.Refer to vascular surgeon

E.Topical flucloxacillin

Answer:Compression bandaging

Explanation:

Management of venous ulceration - compression bandaging

Important for meLess important

The ankle-brachial pressure index readings indicate a reasonable arterial supply and suggest the ulcers are venous in nature.

Question:

A 70-year-old man presents to the clinic as he has had problems with his vision for the last month. He complains of having difficulty reading words in books and has noticed they have gone blurry. On examination, his visual acuity is 20/30 bilaterally. He takes amlodipine and ramipril for his hypertension and smokes 30 cigarettes per day. He is worried about losing his vision as his father had a similar problem.

Fundoscopy shows deposits of amber material under the retinal pigment epithelium in both eyes. There is no neovascularisation.

What is the next most appropriate investigation to aid the diagnosis?

A.Fluorescein angiography

B.Measure intraocular pressure

C.Slit lamp examination of the anterior chamber

D.Test with Amsler grid

E.Test with Ishihara plates

Answer:Test with Amsler grid

Explanation:

Amsler grid testing (to check for distortion of line perception) may be useful in testing patients with suspected age related macular degeneration

Important for meLess important

Test with Amsler grid is correct. This patient has signs and symptoms of dry age-related macular degeneration (AMD). This is confirmed by the presence of drusen on fundoscopy (referred to as 'amber material under the retinal pigment epithelium in both eyes'). An Amsler grid is a relatively quick and easy test to assess for AMD. Patients with AMD see distorted lines instead of straight ones.

Fluorescein angiography is incorrect. It would be appropriate if there were signs of choroidal neovascularisation, as it assesses the vascular supply to the retina and choroid. This patient does not have choroidal neovascularisation; therefore, this is not the correct option.

Measure intraocular pressure is incorrect. A raised intraocular pressure would point towards a diagnosis of glaucoma, not macular degeneration.

Slit lamp examination of the anterior chamber is incorrect. This allows examination of the front of the eye - for example, to diagnose injuries, corneal infections, or cataracts. However, it does not play a role in diagnosing age-related macular degeneration.

Test with Ishihara plates is incorrect. This is an investigation used to assess colour-blindness and desaturation, neither of which are relevant in age-related macular degeneration.

Question:

A 64-year-old man develops difficult breathing 15 hours post-emergency laparotomy. On examination, fine crackles are heard on the lower zone of the right lung, and there is resonance on percussion. His oxygen saturation is 96% on air, heart rate is 78 beats per minute, respiratory rate is 16 breaths per minute, blood pressure 110/68 mmHg, and the temperature 38.1 ºC. A chest X-ray reveals a small area of airway collapse in the right lower lobe.

Which of the following is the most effective therapy in this scenario?

A.Intravenous antibiotics

B.Chest physiotherapy and deep breathing exercise

C.High flow oxygen therapy

D.Warfarin and low molecular weight heparin

E.Intubation and mechanical ventilation

Answer:Chest physiotherapy and deep breathing exercise

Explanation:

Management of atelectasis: Chest physiotherapy with mobilisation and breathing exercise

Important for meLess important

The clinical presentation and chest X-ray point to the most likely diagnoses as being atelectasis. Differential diagnoses for early postoperative shortness of breath would include atelectasis, pneumonia and pulmonary embolism (PE, although this would typically be expected to occur later on). PE is unlikely as this patient is normotensive, not tachycardic or tachypnoeic. Pneumonia is unlikely given the resonance on percussion, and the absence of consolidation on the chest X-ray.

Atelectasis is a common post-operative complication in which basal alveolar collapse can lead to respiratory difficulty. It is caused when airways become obstructed by bronchial secretions. The most effective treatment for atelectasis is deep breathing exercises and chest physiotherapy. This ensures that the airways are opened maximally and coughing can be performed effectively.

Question:

A baby is born at 39 weeks by spontaneous vaginal delivery. Pre-natal scans identified congenital transposition of the great arteries (TGA) and the neonate is immediately admitted to the paediatric cardiology intensive care unit.

What medication is most important to be administered until the neonate can have surgery at a few days old?

A.Alprostadil

B.Caffeine

C.Corticosteroids

D.Ibuprofen

E.Indomethacin

Answer:Alprostadil

Explanation:

Prostaglandin E1 should be given to maintain a patent ductus arteriosus in cyanotic congenital heart diseases

Important for meLess important

Transposition of the great arteries (TGA) causes cyanotic heart disease, which is managed initially by giving alprostadil to maintain a patent ductus arteriosus. This allows some flow of oxygenated blood to the body, without which, the neonate has two separate circulation systems and oxygenated blood from the lungs will not reach the rest of the body.

Caffeine is given for neonatal apnoea, but is not the most likely medication to be given in a case of TGA.

Corticosteroids are given to pregnant women in cases of likely premature birth before 36 weeks to help stimulate surfactant production in the neonatal lungs.

Ibuprofen and indomethacin are NSAIDs which can be used in babies to close a persistent or symptomatic patent ductus arteriosus.

Question:

A 40-year-old with known rheumatoid arthritis, established on sulfasalazine and regular paracetamol and ibuprofen, is seen by her GP with ongoing low mood. Non-pharmaceutical interventions have been trialled with limited improvement and now the patient reports they feel their depressive symptoms are worsening.

As such the GP decided to commence the patient on an antidepressant.

What agent would increase this patient’s risk of a GI bleed the most, therefore, warranting a protein pump inhibitor as cover?

A.Amitriptyline

B.Citalopram

C.Haloperidol

D.Selegiline

E.St John's Wort

Answer:Citalopram

Explanation:

SSRI + NSAID = GI bleeding risk - give a PPI

Important for meLess important

Citalopram is a common selective serotonin reuptake inhibitor (SSRIs), which are now considered the first-line treatment for most patients with depression. As the name suggests SSRIs increase the extracellular level of serotonin by limiting its reabsorption at the pre-synapses. Gastrointestinal (GI) disruption is common with SSRI use, and they are associated with a significant risk of GI bleeding. It is thought SSRI potential deplete platelet serotonin, resulting in a reduction in clot formation, therefore, increasing the risk of bleeding. As this patient is already established on an NSAID the addition of an SSRI will increase her risk of GI bleeding further and therefore a protein pump inhibitor (PPI) should also be prescribed.

Amitriptyline is a tricyclic antidepressant (TCA) that can be used in the management of major depressive disorders as well as several different pain syndromes. Amitriptyline inhibits serotonin transporter (SERT) and norepinephrine transporter (NET) both increasing neurotransmitter availability. The main adverse effects of TCAs are related to their anticholinergic effects resulting in symptoms such as blurred vision, dry mouth, and constipation etc. GI bleeds are not commonly associated with TCAs.

Haloperidol is a typical antipsychotic, rarely used for patients with severe depression and psychotic symptoms. It blocks receptors in the brain's dopamine pathways and therefore the main adverse effects include, extrapyramidal side effects (akathisia, dystonia etc), hypotension and anticholinergic effects. Again GI bleeds are rare.

Selegiline is a selective and irreversible inhibitor of monoamine oxidase B (MAO-B), and therefore in the class of monoamine oxidase inhibitors (MAOIs). MAOIs are used as antidepressants and work by preventing the breakdown of monoamine neurotransmitters, increasing their availability. MAOIs have been associated with an increased risk of serotonin syndrome and hypertensive crises but GI bleeds are rare.

Hypericum perforatum, commonly known as St John’s Wort is a plant frequently used in alternative medicine, particularly for the management of depression. Although its use remains controversial multiple studies have indicated it may have superiority over placebo on treating mild to moderate depression, with the active ingredients thought to be hypericin and hyperforin. St John’s wort can interfere with other medications, and its use with other antidepressants is associated with an increased risk of serotonin syndrome, however, it has not been associated with an increased risk of GI bleeding.

Question:

A 21-year-old woman presents to the emergency department with pain in her wrist, having fallen off her bike onto her outstretched left hand earlier that morning. On examination, there is marked swelling in her left wrist, and she has limited abduction at her wrist due to pain. On palpation, she is maximally tender over the anatomical snuffbox. The doctor suspects a scaphoid fracture. A wrist x-ray is performed which is unremarkable.

What is the next best management step?

A.DIscharge with follow-up in 6 weeks

B.Physiotherapy

C.Referral to orthopaedics and repeat imaging in 3-5 days

D.Referral to orthopaedics and repeat imaging in 7-10 days

E.Surgical fixation

Answer:Referral to orthopaedics and repeat imaging in 7-10 days

Explanation:

If scaphoid fracture is suspected, but imaging is inconclusive, further imaging + clinical review should occur at 7-10 days

Important for meLess important

The correct answer is repeat imaging in 7-10 days . In around 16% of cases, scaphoid fractures are not immediately visible on X-ray. However, if scaphoid fractures are missed, this can lead to non-union and subsequent avascular necrosis of the proximal segment, due to the retrograde blood supply of the scaphoid from the dorsal carpal branch of the radial artery. The NICE guidelines suggest that if a scaphoid fracture is suspected, but imaging is inconclusive, repeat imaging should be performed after 7 days.

Physiotherapy is incorrect. Whilst it is likely to be required in the future, this is not the most appropriate immediate management. Further movement may cause more damage, and therefore a splint and immobilisation at this time would be more appropriate.

Surgical fixation is incorrect. This is only carried out if there is significant evidence of displacement, which the vignette denies.

Referral to orthopaedics and repeat imaging in 3-5 days is incorrect. The NICE guidelines recommend 7 days to allow fibrosis of the broken scaphoid to occur and for this to become visible on plain film.

Discharge and follow-up in 6 weeks is incorrect. This would be negligent and may cause the patient significant disability if the proximal segment of the scaphoid undergoes avascular necrosis during this time.

Question:

A 29-year-old man is admitted with sudden onset dyspnoea and pleuritic chest pain. He is a smoker but has no history of respiratory disease. He considers himself healthy and regularly plays rugby. On admission he has a chest x-ray that shows a pneumothorax with a 3cm rim of air. Aspiration is successful and he is discharged. A follow-up chest x-ray two weeks later shows a complete resolution. What is the single most important piece of advice to reduce his risk of further pneumothoraces?

A.Avoid flying for 12 months

B.Avoid contact sports for 12 months

C.Stop smoking

D.Arrange a course of respiratory physiotherapy

E.Seek prompt medical advice for potential respiratory infections

Answer:Stop smoking

Explanation:

All patients should be advised to avoid smoking to reduce the risk of further episodes - the lifetime risk of developing a pneumothorax in healthy smoking men is around 10% compared with around 0.1% in non-smoking men.

With respect to 'Fitness to fly' rules the CAA suggest patients may travel 2 weeks after successful drainage if there is no residual air. The British Thoracic Society used to recommend not travelling by air for a period of 6 weeks but this has now been changed to 1 week post check x-ray

Question:

A 35-year-old woman comes in reporting a 2 month history of epigastric pain following her meals. She is otherwise fit and well and not taking any medications. She has tried gaviscon which has not helped to improve her symptoms.

Which one of the following is the most appropriate management?

A.Treat with a proton pump inhibitor (PPI) at full dose for 1 month

B.2 week wait referral

C.Refer for gastroscopy

D.Treat with a proton pump inhibitor (PPI) at half dose for 1 month

E.Continue gaviscon

Answer:Treat with a proton pump inhibitor (PPI) at full dose for 1 month

Explanation:

This patient has presented with dyspepsia without any alarm features and she is not any drugs that could precipitate her symptoms. She should therefore be advised regarding lifestyle factors and then either given a full dose proton pump inhibitor(PPI) for 1 month, or she should be tested and treated for Helicobacter pylori.

Question:

A 7-year-old girl is brought into the paediatric assessment unit with her mother. Her mother reports noticing a rash on her daughter this morning. The patient is usually fit and well, although her mother reports some coryzal symptoms a few days before the rash appeared.

On examination, you notice a purpuric rash over the patient's buttocks and lower legs. The child is also complaining of wrist and knee pain.

Given the likely diagnosis, what monitoring might the patient need?

A.Blood pressure and FBC

B.Blood pressure and urinalysis

C.FBC and LFTs

D.LFTs and urinalysis

E.Visual acuity

Answer:Blood pressure and urinalysis

Explanation:

Patients with active Henoch-Schonlein purpura: blood pressure and urinanalysis should be monitored to detect progressive renal involvement

Important for meLess important

This patient has a likely diagnosis of Henoch-Schonlein purpura (HSP). We can deduce this given the features of the rash\*, polyarthralgia, and the preceding coryzal symptoms.

\*HSP typically has a palpable purpuric rash affecting the lower limbs and buttocks.

Blood pressure and urinalysis is correct. Patients with HSP are at risk of renal failure. Therefore, they require regular blood pressure and urinalysis monitoring. Patients require weekly monitoring for the first month, then fortnightly for 5-12 weeks and then a review at 6 months and finally 12 months. Blood pressure and urinalysis are monitored to check for any progression of the disease and consequent renal failure.

Blood pressure and FBC is incorrect. Although blood pressure monitoring is required for patients with HSP, they are not required to have FBC monitoring.

FBC and LFTs is incorrect. Neither FBC nor LFT monitoring is required for patients with HSP. Although these bloods may be performed initially to rule out other diagnoses, such as infection, it is not something that would be performed as part of monitoring following a diagnosis of HSP.

LFTs and urinalysis is incorrect. Although urinalysis monitoring is required for patients with HSP, they are not required to have LFT monitoring.

Visual acuity monitoring is incorrect. HSP is not known to have ocular involvement and monitoring visual acuity is therefore unnecessary.

Question:

A 51-year-old man presents with haematuria, lethargy, and cough. He smokes 15 cigarettes/day and has COPD.

His heart rate is 89/min, his respiratory rate is 18/min, his blood pressure is 151/93 mmHg and his oxygen saturation is 88%. There is central adiposity with purple striae on the abdomen and a painless 8cm mass in the left flank.

The blood results are as follows:

Hb 191 Men: 135-180 g/L Women: 115-160 g/L

Na+ 148 135-145 mmol/L

K+ 3.1 3.5 - 5.0 mmol/L

Calcium 3.2 2.1-2.6 mmol/L

The chest x-ray shows areas of low density and flattening of the diaphragm.

Given the most likely diagnosis, what is the definitive treatment?

A.Chemotherapy

B.Hydrocortisone followed by adrenalectomy

C.Palliative treatment

D.Partial nephrectomy

E.Radical nephrectomy

Answer:Radical nephrectomy

Explanation:

Radical nephrectomy is the most effective management option in renal cell carcinoma - RCC is usually resistant to radiotherapy or chemotherapy

Important for meLess important

Radical nephrectomy is correct. This man is presenting with typical signs and symptoms of renal cell carcinoma. Painless flank mass, haematuria, and paraneoplastic features including hypertension, polycythaemia, hypercalcaemia, and Cushing's syndrome. There are no signs yet to indicate it has metastasised as his chest x-ray findings are typical of COPD reflecting hyper-inflated lungs with emphysematous bullae. There are no cannonball metastases yet. Thus, localised renal cancer (that is 7 cm or larger) is definitively treated with a radical nephrectomy. Adjuvant treatment does not help completely resected disease.

Chemotherapy is incorrect. Renal cell carcinomas are usually resistant to radiotherapy and chemotherapy. Thus, adjuvant chemo-radiation does not form part of the definitive management for such cancers. Furthermore, there are no signs to indicate metastases. Thus, radical nephrectomy may be indicated depending on the extent and spread of the cancer.

Hydrocortisone followed by adrenalectomy is incorrect. This is the treatment for Cushing's syndrome secondary to an adrenal adenoma. Although this patient does present with typical features of Cushing's syndrome (central adiposity, hypernatraemia, hypokalaemia), this is secondary to renal cancer and not an adrenal adenoma. Thus, radical nephrectomy is required to definitively treat the problem.

Palliative treatment is incorrect. This may well be needed if there were metastases, however, there are no signs to indicate metastases. The commonest location for renal metastases is the lungs and the chest x-ray reflects changes that are typical of COPD (hyper-inflated lungs and emphysematous bullae). Therefore, localised renal cell carcinoma is definitively managed with a radical nephrectomy.

Partial nephrectomy is incorrect. Although a partial nephrectomy may be indicated to treat renal cell carcinomas depending on the extent and spread of the cancer, this is only if they are less than 7 cm. This cancer is over 7 cm, thus a radical nephrectomy is required.

Question:

A 27-year-old man has a sudden onset of hearing voices narrating his actions. He also strongly believes he has been sent by God as a prophet. This is not congruous with the patient's religious beliefs. On mental state examination, the patient is displaying tangentiality and clanging. After two weeks, the patient's symptoms resolve completely. He has a history of depression in his late teens. He has no previous similar episodes.

What condition was this patient suffering from?

A.Bipolar affective disorder

B.Brief psychotic disorder

C.Drug abuse

D.Schizoaffective disorder

E.Schizophrenia

Answer:Brief psychotic disorder

Explanation:

Brief psychotic disorder often resolves with a return to baseline functioning

Important for meLess important

This patient was experiencing psychosis. He had hallucinations, delusions, and thought disorganisation.

Brief psychotic disorder is correct. This describes an episode of psychosis lasting less than a month with a subsequent return to baseline functioning.

Bipolar affective disorder is incorrect. Though he has a history of depression, there are no features suggesting manic episodes.

Drug abuse is incorrect. Though drug abuse can trigger episodes of psychosis, there are no features in the question stem that raise the suspicion of drug abuse in this patient. It is important to take a careful history and collateral history to ascertain any background of drug use.

Schizoaffective disorder is incorrect. This is a disorder in which symptoms of both psychotic and mood disorders present together during one episode, or within two weeks of each other. An acute onset with a return to baseline within two weeks would be unlikely. There are no indications of current mood problems for this patient.

Schizophrenia is incorrect. This would not resolve completely within two weeks.

Question:

You are working in a general practice and see a patient who recently presented with flu-like symptoms and anorexia, following a month of travelling abroad. Early tests suggest a diagnosis of acute infective hepatitis. The patient is very worried about his friends and family finding out about this. He tells you that they will not understand and may break contact with him. You explain you need to refer him to the hospital for further investigation and treatment, as well as informing your local authority. He agrees to have treatment but pleads with you not to inform anyone. What should you do?

A.Tell him you will call his family and explain the situation on his behalf, before reporting to the local authority

B.Write a letter to the hospital outlining that you have not yet informed the local authority, ask them to do so

C.Discuss your reasons for informing the local authority and explain that confidentiality means only those who need to be informed will be

D.Await the results of further confirmatory tests, explaining that if these are positive, the local authority must be informed

E.Explain that he can have some time to discuss the diagnosis with his family, and that he should then self-report to the local authority

Answer:Discuss your reasons for informing the local authority and explain that confidentiality means only those who need to be informed will be

Explanation:

Public Health England publish a list of notifiable diseases which doctors have a statutory duty to report to their local council or local health protection team. Acute infective hepatitis is one of these conditions.

The Public Health England guidance states that notification should be made 'immediately on diagnosis of a suspected notifiable disease' and advises doctors not to 'wait for laboratory confirmation of a suspected infection or contamination before notification'.

As a result, option 3 is the only correct response to this situation. Avoiding this obligation may potentially put other members of the public at risk and is breaking the law. Option 3, without consent, is breaking patient confidentiality. Asking the patient to self-report is unsuitable, avoids your obligation as a doctor and given the patient's original response to the situation, it is unlikely this is something that he would do.

References:

Public Health England. Notifications of infectious diseases (NOIDs) and reportable causative organisms: legal duties of laboratories and medical practitioners. London: Public Health England, 2010.

Question:

A 25-year-old woman attends the surgery for her first cervical smear as part of the national screening programme. She is asking for advice regarding risk factors for cervical cancer. Which of the following statements is true regarding her risk?

A.Risk decreases with increased parity

B.Taking the combined oral contraceptive pill has no impact on the risk of developing cervical cancer

C.Women who have had the HPV vaccine (Gardasil) do not need to be invited for cervical screening

D.Women who smoke are at a two-fold increased risk than women who do not

E.Women who started having sexual intercourse older are at a increased risk

Answer:Women who smoke are at a two-fold increased risk than women who do not

Explanation:

Women who smoke are at a two-fold increased risk of developing cervical cancer than women who do not

Important for meLess important

Women who smoke are at a two-fold increased risk of developing cervical cancer than women who do not. Regarding the other options - risk increases with increased parity; use of the combined oral contraceptive pill is a risk factor; at present, women who have been vaccinated against HPV are still invited to, and should be encouraged to, engage with cervical screening; early first intercourse is a risk factor.

Question:

A 5-month-old girl presents to the emergency department with a 24-hour history of cough and wheeze, on a background history of one week of mild fever and coryzal symptoms. She is otherwise well and has no past medical history of note. Respiratory examination identifies generalised wheeze. Observations show:

Respiratory rate 50/min

Blood pressure 90/50mmHg

Temperature 38.1ºC

Heart rate 122 bpm

Oxygen saturation 97% on room air

What is the most appropriate management for this infant?

A.Amoxicillin

B.Dexamethasone

C.Inhaled racemic adrenaline

D.Nebulised salbutamol

E.Supportive management only

Answer:Supportive management only

Explanation:

Bronchiolitis does not require antibiotics, children requires supportive management only

Important for meLess important

The correct answer is supportive management only. This child is presenting with cough and wheeze on a background history suggestive of a viral illness; this should raise suspicion of bronchiolitis. Bronchiolitis is a condition characterised by bronchiole inflammation in response to a recent viral illness, most commonly respiratory syncytial virus (RSV). As this patient's observations show only a mild fever, the most appropriate management is supportive. Alternatively, if her oxygen saturation was persistently below 92% or her feeding was affected, admission would be considered.

Amoxicillin is incorrect as antibiotics provide no benefit in cases of bronchiolitis. This antibiotic may however be used in cases of uncomplicated community-acquired pneumonia and acute otitis media.

Dexamethasone is incorrect; this is commonly used in the management of croup. This diagnosis is unlikely as it is more likely to present with a barking cough, hoarse voice and inspiratory stridor.

Inhaled racemic adrenaline is incorrect; this is commonly used in the management of croup.

Nebulised salbutamol is incorrect as this patient is haemodynamically stable and requires supportive management only.

Question:

A 27-year-old man is seen in the Emergency Department after he was found having a seizure by a friend.

The patient describes a twitching that started in his left foot and spread to the rest of his leg. He was also seen to be thrusting his pelvis. This lasted about 1 minute. He remained conscious throughout although found himself unable to speak. He describes his leg feeling weak afterwards. The patient is referred to the first seizure clinic.

Where in the brain is this seizure likely to have originated?

A.Cerebellum

B.Frontal lobe

C.Occipital lobe

D.Parietal lobe

E.Temporal lobe

Answer:Frontal lobe

Explanation:

Jacksonian movement (clonic movements travelling proximally) indicates frontal lobe epilepsy

Important for meLess important

Frontal lobe is correct. The history of clonic movements starting in one extremity and moving proximally through the body is typical of a Jacksonian March. This, combined with post-ictal weakness usually indicates a frontal lobe origin.

Parietal lobe is incorrect. A parietal lobe seizure would typically present with sensory disturbances, such as paraesthesia, electric shock type sensations, hallucinations, or dizziness. This does not fit with the motor symptoms described.

Temporal lobe is incorrect. A temporal lobe seizure usually presents with automatisms, such as lip-smacking, grabbing, or plucking at clothes, along with sudden emotional disturbance or a feeling of deja vu; none of which are present here.

Occipital lobe is incorrect. Seizures originating in the occipital lobe are typically visual, presenting with flashers and floaters, or lines in the vision. No visual symptoms were described in this history. This makes an occipital origin unlikely.

Cerebellum is incorrect. While the cerebellum can indirectly cause epileptic seizures, they are unlikely to originate in the cerebellum itself. Symptoms of cerebellar damage include gait disturbance, jerky movements, and speech disturbance, which are similar to those seen here. However, a frontal lobe seizure is more likely.

Question:

You are asked to review a 78-year-old woman with a non-healing leg ulcer by the ward nurse. You notice she is very thin. What is the most appropriate tool to screen for malnutrition?

A.GPMS

B.MN-10

C.MUST

D.GP-MN

E.Waterlow score

Answer:MUST

Explanation:

The Malnutrition Universal Screening Tool (MUST) is used to screen patients for malnutrition

Important for meLess important

The Waterlow score is used to estimate the risk of a patient developing a pressure sore. Whilst this includes an assessment of malnutrition as one of it's components the Waterlow score is not designed to screen for malnutrition.

Question:

A 46-year-old woman presents to her GP with a 2-month history of increasing tiredness and fatigue. She has also noticed that she has been getting more short of breath recently. Her past medical history includes two urinary tract infections in the past year and lower back pain for which she takes paracetamol. She does not take any other medications. On examination, she is pale. The GP orders some baseline blood tests:

Hb 101 g/l (115–165 g/L)

MCV 88.1 fL (80-100 fL)

Platelets 129 \* 109/l (140-400 \* 109/l)

ESR 114 mm/h (3–9 mm/h)

WBC 3.2 \* 109/l (4.0-11.0 \* 109/l)

Na+ 137 mmol/l (135-145mmol/l)

K+ 4.9 mmol/l (3.5-5mmol/l)

Urea 10 mmol/l (2.5-6.7mmol/l)

Creatinine 108 µmol/l (45-90µmol/l)

eGFR 50 ml/min/1.73m2 (>90 ml/min/1.73m2)

Ca2+ 2.9 mmol/L (2.12-2.65mmol/L)

What is the next most appropriate investigation?

A.Renal ultrasound scan

B.Cervical lymph node biopsy

C.PTH levels

D.CT KUB

E.Serum electrophoresis

Answer:Serum electrophoresis

Explanation:

'CRAB' features of multiple myeloma = hyperCalcaemia, Renal failure, Anaemia (and thrombocytopenia) and Bone fractures/lytic lesions

Important for meLess important

The combination of the history, examination findings and blood test results point towards a diagnosis of multiple myeloma. This patient is demonstrating evidence of all four features of multiple myeloma:

C - hypercalcaemia

R - renal insufficiency (suggested by the U&Es and complicated by the recurrent UTIs - patients are susceptible to infections as the production of antibodies by normal plasma cells is impaired)

A - this patient is short of breath due to her anaemia (and the FBC shows evidence of pancytopenia - typically due to plasma cells infiltrating the bone marrow)

B - bone pain (albeit subtle in the form of a vague history of lower back pain)

The immunoglobulin produced by dysplastic plasma cells shows up as a monoclonal band on serum electrophoresis.

Renal ultrasound scan will not aid diagnosis of multiple myeloma.

Cervical lymph node biopsy may be helpful in lymphoma but not myeloma (a bone marrow biopsy would be more helpful in multiple myeloma).

PTH levels can help identify the cause of hypercalcaemia but this patient has enough features suggestive of multiple myeloma to justify investigating for myeloma first.

CT scan of the kidneys, ureters and bladder is unlikely to be helpful in identifying multiple myeloma (although whole-body CT scanning is often used to detect osteolytic lesions).

Question:

A 72-year-old male with metastatic lung cancer is referred to the palliative care team for end of life care. Currently, he takes 10mg oral morphine daily which effectively controls his pain. Anticipatory medications are prescribed in a syringe driver.

How much daily subcutaneous morphine needs to be given?

A.3.3mg

B.5mg

C.6.7mg

D.10mg

E.15mg

Answer:5mg

Explanation:

Divide by two for oral to subcutaneous morphine conversion

Important for meLess important

Switching the route and choice of opioid requires dose adjustment. Oral morphine is half as strong as subcutaneous/intravenous morphine mainly due to first-pass metabolism.

Fentanyl, buprenorphine and other opioids have varying conversion ratios for different routes.

Question:

You speak to a 56-year-old refugee from Hong Kong who was diagnosed with right-sided otitis media 4 weeks ago. This unfortunately has not responded to two consecutive 7-days courses of 1st-line oral antibiotics.

He continues to struggle with a 'muffled' hearing on that side as well as an annoying intermittent humming noise. He is otherwise well and denies any, fever, pain or discharge.

You arrange an in-person review the following day:

Rinne/Weber's tests: right conductive hearing loss.

Otoscopy: air-fluid level behind the tympanic membrane, no bulging or redness.

What is the next most appropriate action?

A.Arrange a 2-week wait CT scan of the paranasal sinuses

B.Reassure him he has eustachian tube dysfunction and it should resolve soon

C.Refer routinely to ENT for eustachian tube decompression and grommet insertion

D.Refer under 2-week wait to ENT for suspected cancer

E.Try a different antibiotic and review in 3 days to assess response

Answer:Refer under 2-week wait to ENT for suspected cancer

Explanation:

Unilateral middle ear effusion in an adult can be a presenting symptoms of nasopharngeal cancer

Important for meLess important

The correct answer is send a 2-week wait ENT referral for suspected cancer.

This man has presented with a persistent unilateral middle ear effusion. In adults, 'glue-ear' or middle ear effusion is not as common as it is in children. The East Asian background and unilateral nature raise suspicion of cancer of the nasopharynx (or eustachian tube, paranasal sinuses, etc).

NICE recommends an urgent 2-week wait referral for adults from Chinese or south-east Asian family origin presenting with hearing loss and a middle ear effusion not related to an upper respiratory tract infection. Whilst nasopharyngeal cancer is rare, it would need to be excluded. All other options do not address the possibility of cancer, and the urgent need to rule it out.

Arrange a 2-week wait CT scan of the paranasal sinuses is not correct. This may be undertaken once the patient is seen by a specialist in ENT but this is not recommended to be done in primary care by NICE. ENT may arrange other investigations such as nasal endoscopy or MRI to rule out the possibility of nasopharyngeal cancer.

Try a different antibiotic and review in 3 days to assess response is not correct. This man has not responded to two courses of antibiotics and there is no clear indication that he has a middle ear infection from his signs and symptoms (no earache or systemic symptoms, no bulging, redness or perforation of the tympanic membrane). His otoscopy findings are consistent with a middle ear effusion.

Reassure him he has eustachian tube dysfunction and it should resolve soon is not correct. It is unlikely for this to cause unilateral symptoms and while this is a much more common entity, there is specific NICE guidance to consider nasopharyngeal cancer in such a patient and an urgent ENT referral to rule it out.

Refer routinely to ENT for eustachian tube decompression and grommet insertion is not correct. Routinely referring may take months before he is seen. NICE guidance suggests an urgent referral should be considered.

Source: NICE guidance: hearing loss in adults: assessment and management:

'Consider making an urgent referral (to be seen within 2 weeks) to an ear, nose and throat service for adults of Chinese or south-east Asian family origin who have hearing loss and a middle ear effusion not associated with an upper respiratory tract infection'.

Question:

A 68-year-old retired farmer telephones his GP to discuss gout prevention. Despite optimising his diet and reducing his alcohol intake to a minimum, he has suffered 4 flares in the past year. The patient has a BMI of 28 kg/m² and is trying to reduce this through lifestyle interventions. He suffers from a hiatus hernia which is controlled with omeprazole, has no other underlying health complaints and takes no other medications. His last gout attack was 6 weeks ago and recent blood testing found the following:

urate 498 micromol/L

Given the above, what is the most appropriate treatment?

A.Start allopurinol

B.Start allopurinol + colchicine

C.Start low-dose prednisolone

D.Start naproxen

E.Start ibuprofen

Answer:Start allopurinol + colchicine

Explanation:

NSAID or colchicine 'cover' should be used when starting allopurinol

Important for meLess important

Current NICE guidelines advise urate-lowering therapy (ULT) for gout patients who suffer from ≥2 attacks per year. When commencing ULT, colchicine cover should be co-prescribed for up to 6 months from initiation. If colchicine is unsuitable, NICE recommends considering NSAID cover as an alternative.

Short courses of high-dose prednisolone is an effective treatment for acute gout. However, low-dose prednisolone is not a suitable option for gout prevention due to the adverse effects of long-term corticosteroid use.

Although an NSAID such as naproxen or ibuprofen could be used to treat gout, this would arguably be less preferable given his history of hiatus hernia. As opposed to xanthine oxidase inhibitors such as allopurinol or febuxostat, an NSAID is not ULT and is thus unsuitable for gout prevention.

Question:

The Bangladeshi parents of a 12-year-old boy come for advice. They have recently emigrated to the UK and have been advised that he should have the BCG vaccine for tuberculosis by immigration officials. He is well and asymptomatic. What is the most appropriate next step?

A.Arrange for him to have the BCG vaccine

B.Reassure the parents that he does not require the BCG vaccine

C.Prescribe a six-month course of rifampicin

D.Arrange a tuberculin skin test

E.Arrange a chest x-ray

Answer:Arrange a tuberculin skin test

Explanation:

It is important that a tuberculin skin test is performed (to exclude past exposure to tuberculosis) prior to giving the vaccine.

Question:

A 67-year-old man presents feeling 'generally unwell' and complaining of pain in his back and legs. His wife also reports that he has been slightly confused for the past two weeks. Basic blood tests are ordered:

Hb 12.1 g/dl

Platelets 411 \* 109/l

WBC 7.6 \* 109/l

Na+ 143 mmol/l

K+ 5.3 mmol/l

Urea 15.7 mmol/l

Creatinine 208 µmol/l

Bilirubin 20 µmol/l

ALP 110 u/l

ALT 55 u/l

γGT 67 u/l

Albumin 31 g/l

Total protein 84 g/l

Calcium 3.10 mmol/l

Phosphate 0.79 mmol/l

What is the most likely underlying diagnosis?

A.Multiple myeloma

B.Renal cancer with bony metastases

C.Sarcoidosis

D.Primary hyperparathyroidism

E.Prostate cancer with bony metastases

Answer:Multiple myeloma

Explanation:

Hypercalcaemia, renal failure, high total protein = myeloma

Important for meLess important

One of the stand out results is the high calcium level. This immediately narrows the differential diagnosis considerably. Remember the two most common causes of hypercalcaemia are malignancy and primary hyperparathyroidism. Neither of these alone would however explain the renal failure and high total protein, both common features of untreated myeloma.

Question:

A 55-year-old man is seen in clinic with episodic pruritus over the last 6 months. These symptoms are worse after taking a hot bath. He stopped smoking after being diagnosed with stage 1 COPD last month.

He has a red face and neck, and his spleen is mildly enlarged. Auscultation of the chest is normal. His heart rate is 85 bpm, his blood pressure is 135/75 mmHg, and his oxygen saturations are 97% on room air.

Blood tests show:

Hb 190 g/L Male: (135-180)

Platelets 410 \* 109/L (150 - 400)

WBC 9.3 \* 109/L (4.0 - 11.0)

pH 7.38 (7.35 - 7.45)

pCO2 4.7 kPa (4.5 - 6.0)

pO2 12 kPa (10 - 14)

What is the most likely cause of his presentation?

A.Acute myeloid leukaemia

B.Chronic myeloid leukaemia

C.Essential thrombocytosis

D.Polycythaemia secondary to COPD

E.Polycythaemia vera

Answer:Polycythaemia vera

Explanation:

Raised haemoglobin, plethoric appearance, pruritus, splenomegaly, hypertension → ?polycythaemia vera

Important for meLess important

Polycythaemia vera (PV) is correct. The presence of increased haemoglobin, a plethoric appearance (red appearance), splenomegaly, and pruritus suggest a diagnosis of PV, a myeloproliferative disorder. Since there is an increased amount of proliferation of bone marrow stem cells affecting cells of the myeloid lineage, red cell numbers are increased, along with other myeloid cells including platelets, mast cells, and neutrophils. Around 50% of patients with PV also have an increased number of platelets. Pruritus which is worse after a hot shower or bath is a characteristic feature, and this is thought to be due to increased histamine release due to increased numbers of mast cells. Since this patient's oxygen saturations are normal and their arterial blood gas results (pH, pCO2, and pO2) are normal, polycythaemia secondary to hypoxia is less likely.

Polycythaemia secondary to COPD is incorrect. Although chronic hypoxia can lead to the development of polycythaemia, this patient has Stage 1 COPD and his examination and test findings do not show signs that would suggest any disease that is severe or prolonged enough to cause polycythaemia. Auscultation of the chest is normal and as mentioned above, his oxygen saturations and arterial blood gas results are normal, making polycythaemia secondary to hypoxia less likely.

Chronic myeloid leukaemia (CML) is incorrect. Although this may present with splenomegaly and thrombocytosis, CML is associated with anaemia and would have associated constitutional symptoms, such as weight loss and night sweats, which are not seen here. In CML, splenomegaly tends to be marked and severe enough to cause abdominal discomfort, which is not the case here. CML would not explain the plethoric appearance this patient has and his symptoms worsening following taking a bath.

Essential thrombocytosis (ET) is incorrect. Although this is associated with increased platelets, this diagnosis would not explain the increased haemoglobin, nor is ET associated with a plethoric appearance, or pruritus that is worse following a hot bath. ET characteristically presents with burning sensations in the hands and would not have increased haemoglobin on blood tests.

Acute myeloid leukaemia (AML) is incorrect as although this can present with splenomegaly, it is associated with anaemia (low haemoglobin and its associated features such as pallor and lethargy) and with thrombocytopenia and easy bleeding, which are not seen here. AML is not associated with a plethoric appearance and pruritus that is worse after taking a hot bath.

Question:

A General Practitioner refers a 7-week-old child to the neurosurgery clinic after noticing that the child's head circumference is increasing exponentially.

Which of the following findings would be consistent with the child having hydrocephalus?

A.Impaired downward gaze

B.Impaired upward gaze

C.Tachycardia

D.Absent scalp veins

E.Sunken fontanelles

Answer:Impaired upward gaze

Explanation:

Infants with hydrocephalus will present with increased head circumferences, a bulging fontanelle and sunsetting of the eyes

Important for meLess important

Hydrocephalus presents in infants with an increasing head circumference (splaying of the skull plates allowed by unfused sutures), bulging fontanelles, impaired upward gaze ('sunsetting'; caused by pressure on the tectal plate), dilated scalp veins, bradycardias, seizures and coma.

Question:

A 35-year-old woman gets a routine chest X-ray performed as it is required by her job before she travels abroad. Bilateral hilar lymphadenopathy is noted and a biopsy is performed. A diagnosis of stage 1 sarcoidosis is confirmed.

What is the best first-line treatment in this case?

A.Prednisolone

B.Methotrexate

C.Anti-tumour necrosis factor (TNF) monoclonal antibodies

D.Rituximab

E.No treatment

Answer:No treatment

Explanation:

Bilateral hilar lymphadenopathy alone is not an indication for steroids in sarcoidosis

Important for meLess important

This question is asking about a woman presenting with asymptomatic bilateral hilar lymphadenopathy. After further investigation, the diagnosis of sarcoidosis is made. As this patient is asymptomatic no treatment is required in this case.

If she was symptomatic or if she had a higher stage disease the first line treatment would be prednisolone. With the other treatments listed above used as second and third line options if this was no controlling her symptoms.

Question:

A 32-year-old woman has noticed painful lesions on both of her shins in the past 2 weeks.

She is currently 18 weeks pregnant and reports that she was treated with a course of cefalexin for a urinary tract infection 3 weeks ago. She also has a history of hypothyroidism and increased her levothyroxine dose in her first trimester after her blood tests indicated she was undertreated. In addition, she has irritable bowel syndrome which is well-managed at present. She smokes 2 cigarettes a day.

On examination, there are multiple erythematous nodular lesions distributed symmetrically on her lower legs, measuring between 1 and 5 cm in size.

Which part of her medical history is most likely to have caused her dermatological condition?

A.Irritable bowel syndrome

B.Hypothyroidism

C.Pregnancy

D.Cefalexin

E.Smoking

Answer:Pregnancy

Explanation:

Erythema nodosum may be caused by pregnancy

Important for meLess important

The description of this woman's symptoms is in keeping with erythema nodosum (EN), an inflammatory disorder affecting subcutaneous fat resulting in panniculitis. It typically presents as tender erythematous nodules on the anterior shins, but can also affect the thighs and arms. Lesions heal without scarring.

Numerous causes have been identified, of which pregnancy is the only correct option from the list above. It is estimated to account for 2-5% of cases of EN.

Irritable bowel syndrome - unlike inflammatory bowel disease - does not cause erythema nodosum.

Hypothyroidism is not associated with erythema nodosum, although many other autoimmune diseases have been identified as causes.

While a number of drugs (including penicillins, sulphonamides and the oral contraceptive pill) can cause EN, it is not particularly associated with cephalosporins such as cefalexin.

Smoking is not directly related to the development of EN.

Question:

A 23-year-old female presents to the GP with concerns about her mood during her period. She has been suffering from symptoms for the past 6 months despite making lifestyle changes. The week before her period she has noticed a significant change in her mood. She feels incredibly low and anxious, with poor concentration. Her irritability is starting to have an impact on her job as a primary school teacher. There are no other physical symptoms, and she feels her normal self for the rest of the month. Her medical history includes migraine with aura.

Given the likely diagnosis, what is the most appropriate treatment for this patient?

A.Amitriptyline

B.Combined oral contraceptive pill (COCP)

C.Fluoxetine

D.Lifestyle advice

E.Mirena intrauterine system (IUS)

Answer:Fluoxetine

Explanation:

SSRIs, either continuously or during the luteal phase, may help premenstrual syndrome

Important for meLess important

This patient is likely suffering from pre-menstrual syndrome (PMS). Amitriptyline is incorrect as only low dose selective serotonin reuptake inhibitor (SSRI) antidepressants are advised in the treatment of PMS.

The combined oral contraceptive pill is used to treat PMS, particularly in women with moderate symptoms. However, in this case, it would be contraindicated (UKMEC 4) due to her history of migraine with aura.

Lifestyle advice is important in the management of PMS, but this patient has already made these changes and her symptoms are starting to have an impact on her work. Therefore this is an incorrect answer.

The Mirena IUS is incorrect as it is not used in the treatment of PMS. It is the first-line treatment in the management of menorrhagia.

Fluoxetine is the correct answer. A low dose of SSRI has a role in the management of PMS, particularly with severe symptoms.

Question:

Samantha is a 41-year-old woman who comes to see you with heavy menstrual bleeding that has been worsening over the last 12 months. Along with this, she has severe period pain which begins a few days before each cycle. Her periods are regular and she has a 29-day cycle.

Samantha has not been sexually active over the past year and takes no regular medication. She has 2 teenage children who were both born by vaginal delivery with no complications.

Abdominal examination is unremarkable and a speculum examination reveals a normal-looking cervix.

You request a full blood count. What is the most appropriate next step?

A.Arrange for levonorgestrel intrauterine system (LNG-IUS) insertion

B.Arrange for outpatient hysteroscopy

C.Refer urgently to gynaecology

D.Request a transabdominal ultrasound

E.Request a transvaginal ultrasound

Answer:Request a transvaginal ultrasound

Explanation:

Menorrhagia - do an ultrasound if abnormal exam findings, pelvic pain, intermenstrual or postcoital bleeding

Important for meLess important

NICE guidelines on menorrhagia state:

'Offer a transvaginal ultrasound (in preference to a transabdominal ultrasound or MRI [magnetic resonance imaging]) to women with menorrhagia who have significant dysmenorrhoea (period pain) or a bulky, tender uterus on examination that suggests adenomyosis.'

Samantha is presenting with new menorrhagia and significant dysmenorrhoea which warrants a transvaginal ultrasound. NICE recommends that if a transvaginal ultrasound is declined or unsuitable, consider a transabdominal ultrasound or MRI, explaining the limitations of these techniques.

The guideline recommends that for women with no identified pathology, fibroids less than 3 cm in diameter, or suspected or diagnosed adenomyosis, to consider a levonorgestrel intrauterine system (LNG-IUS) as the first-line treatment. So the LNG-IUS may be an appropriate treatment for Samantha, however the most appropriate initial next step is to arrange for a transvaginal ultrasound to investigate further.

There are no red flags in Samantha's history or examination to warrant an urgent referral to gynaecology at this stage.

Question:

A 72-year-old woman presents with a red, painful eye to eye casualty. The pain started suddenly this morning, and her vision became blurry in the affected eye.

On examination, the eye looks red, her eyelid is swollen and there is a small hypopyon on closer inspection. Her vision appears blurry in the affected eye and she can only see moving fingers at a distance of one meter. On fundoscopy, periphlebitis is observed.

This is the first time this has happened to her and she is otherwise well, other than a cataract surgery she had 5 days ago.

What is the most likely diagnosis?

A.Blepharitis

B.Endophthalmitis

C.Infective conjunctivitis

D.Keratitis

E.Posterior uveitis

Answer:Endophthalmitis

Explanation:

Post-operative endophthalmitis is a serious but rare complication of cataract surgery which needs urgent treatment

Important for meLess important

The correct answer is endophthalmitis. This patient is presenting with a painful, red eye following cataract surgery. Endophthalmitis, defined as the inflammation of the aqueous and/or vitreous humour, is a rare but recognised complication of cataract surgery.

It is usually caused by the perioperative introduction of microbial organisms into the eye either from the patient's normal conjunctival and epidermal flora or from contaminated instruments. Retinal periphlebitis is usually the earliest sign, followed by pain, red eye, ocular discharge, and worsening vision. In some cases like this one, a hypopyon can form. It needs to be managed promptly with intravitreal or systemic antibiotics.

Blepharitis is a term used to describe a chronic inflammatory condition affecting the margin of the eyelids. It is commonly caused by bacteria or seborrhoeic dermatitis. It is characterised by burning, itching and crusting of the eyelids, without involving the conjunctiva and the deep structures. Hence, it would not justify the red, painful eye this patient is presenting with.

Infective conjunctivitis is a very common ocular complaint. It presents with sore, red eyes associated with a discharge, either purulent or liquid, depending on the causative organism. It does not cause worsening vision, making this option incorrect.

Keratitis describes an inflammation of the cornea. It is defined by the presence of a red eye, photophobia, foreign body, and occasional hypopyon. This patient does not have foreign body sensations or photophobia. Additionally, it does not cause worsening vision, making this option less likely.

Posterior uveitis refers to inflammation of the choroid, the posterior part of the uvea. It does not cause an acute presentation, as in most cases it is asymptomatic. If symptomatic, it causes floaters, reduced visual acuity, light sensitivity and blurred or lost vision. In this case, the patient is presenting with an acutely painful red eye, making this option incorrect.

Question:

A patient is brought into resus following a seizure, he has a nasopharyngeal airway (NPA) in situ. A nasopharyngeal airway would be contraindicated in?

A.A patient with a low Glasgow coma score (GCS)

B.Seizures

C.A patient with small nostrils

D.Base of skull fractures

E.A patient with an obstructed airway

Answer:Base of skull fractures

Explanation:

Question:

A 56-year-old gentleman presents to the dermatology clinic. Over the last few weeks, he has noticed a new, enlarging lesion on his cheek which sometimes bleeds. On examination, he has Fitzpatrick skin type I, multiple melanocytic naevi over his body, and the lesion in question is a large, black, dome-shaped lump, of 1cm diameter, located on his right cheek. What is this lesion most likely to represent?

A.Nodular melanoma

B.Basal cell carcinoma

C.Actinic keratosis

D.Lentigo maligna melanoma

E.Superficial spreading melanoma

Answer:Nodular melanoma

Explanation:

Nodular melanoma: Red or black lump, oozes or bleeds, sun-exposed skin

Important for meLess important

This gentleman has nodular melanoma, the second commonest and most aggressive form of melanoma. As in this gentleman, it tends to affect people over the age of 50, with fairer skin, and to occur in chronically sun-exposed areas- most typically the head and neck. This gentleman also has many melanocytic naevi, which is another risk factor. Rather than the growing lesion which most typically associated with melanoma, nodular melanoma presents as a rapidly enlarging lump, often red or black in colour. The lump may be ulcerated, bleeding, itch or sting and may have a smooth, crusty, rough or warty surface.

The other forms of melanoma are less likely to present in this way and are described in more detail in the notes below. A basal cell carcinoma is typically not pigmented and would develop more slowly than the lesion described above. Actinic keratosis is a precancerous lesion which usually appears as a rough, scaly patch on the skin that develops from years of exposure to the sun.

(DermNet NZ)

Question:

A 24-year-old woman presented at 15-weeks gestation with a 1-week history of erythematous, tender lesions on the pretibial aspects of both legs. The patient reported having had a “flu-like” illness with fever, a sore throat and dry cough during the same time as these lesions developing. The “flu” symptoms resolved within 10 days without medical intervention, but the lesions on her legs persisted. An initial antistreptolysin-O titre was raised.

What is the most likely diagnosis in this case?

A.Erythema ab igne

B.Erythema gyratum repens

C.Erythema multiforme

D.Erythema nodosum

E.Polymorphic eruption of pregnancy

Answer:Erythema nodosum

Explanation:

Erythema nodosum can be caused by streptococcal infection

Important for meLess important

Erythema nodosum is a condition that causes painful red bumps under the skin on the shins. It is one of the most common forms of panniculitis that causes inflammation of the subcutaneous fat under the skin. Erythema nodosum can occur in pregnancy due to hormonal changes and infectious with streptococcal pharyngitis being a common cause as described here.

Erythema ab igne is a skin reaction caused by chronic exposure to infrared radiation in the form of heat and is not commonly seen as a direct result of pregnancy.

Polymorphic eruption of pregnancy is a relatively common skin disorder that can occur in women during pregnancy. It usually presents within the first pregnancy. It appears as an itchy, bumpy rash that starts in the stretch marks of the abdomen in the last 3 months of pregnancy then clears with delivery. This is unlikely to be the case here.

Erythema multiforme is a hypersensitivity reaction usually triggered by infections, most commonly herpes simplex virus (HSV) and can be associated with pregnancy. However, it appears as target-like patches (dark circles with purple-grey centres) which are not described here.

Erythema gyratum repens is a rare paraneoplastic type of annular erythema with a distinctive figurate wood-grain appearance which has a strong association with malignancy.

Question:

A nurse informs you of a 28-year-old woman who is 24 weeks pregnant. He says that she has a blood pressure reading of 155/90 mmHg. Her previous blood pressure 2 days ago was 152/85 mmHg. She was previously healthy prior to becoming pregnant.

What is the first line management in this situation?

A.Hydralazine

B.Urgent delivery of the foetus

C.Lifestyle interventions

D.Oral labetalol

E.IM steroid injections

Answer:Oral labetalol

Explanation:

This woman has moderate gestational hypertension. According to the current guidelines, the first line treatment is Oral labetalol.

Source www.nice.org.uk/guidance/cg107/evidence/cg107-hypertension-in-pregnancy-full-guideline3

Question:

A 3-year-old boy is referred to the optometrist by the GP after his mother brought him in concerned about a squint. He is otherwise fit and well.

After an initial assessment by the optometrist, he is diagnosed with exotropia. He is offered appointments to discuss treatment including intermittent eye patching.

During the interim, they move to a different part of the country and miss these appointments. The mother does not seek further attention regarding his exotropia.

What is the child particularly at increased risk of developing in the future?

A.Amblyopia

B.Esotropia

C.Hypermetropia

D.Hypertropia

E.Hypotropia

Answer:Amblyopia

Explanation:

Failure to correct childhood squints may lead to amblyopia

Important for meLess important

Amblyopia is correct. Amblyopia, also known as 'lazy eye', can occur if childhood squints are not corrected. The child has an exotropia (where one eye deviates outward). This typically responds reasonably to patching.

Esotropia is incorrect. This is where an eye deviates inward compared to the other; there is no specific increased risk of this due to the non-compliance with treatment for exotropia.

Hypermetropia is incorrect. Hypermetropia is also known as 'long-sightedness' where the eyes struggle to focus on things close-up. There is no causative link between this and exotropia.

Hypertropia and hypotropia are incorrect. These are forms of vertical strabismus. These are not linked to exotropia and are a different form of squint. So, there is no increased risk of developing vertical strabismus as a result of non-compliance with exotropia treatment.

Question:

A 20-year-old woman comes in for review. 4 weeks ago, she had acute cystitis and was treated with no complications. Urine culture showed no resistant or atypical organisms. She has a history of recurrent lower UTIs and is frustrated as she had 6 in the last year, which has strained her new relationship. She tried cranberry juice and probiotics without benefit.

An ultrasound you arranged of her abdomen revealed no abnormality. Her post-void volume was 25 ml.

You review her behavioural and self-hygiene measures and find the only identifiable trigger is sexual intercourse.

What is the next best action?

A.Prescribe oral antibiotic prophylaxis for daily use

B.Prescribe oral antibiotic prophylaxis for single-dose use with sexual intercourse

C.Prescribe vaginal oestrogen cream

D.Refer to secondary care for further investigations such as urodynamic studies

E.Request a self-taken vulvovaginal swab for Chlamydia, Neisseria gonorrhoea and Mycoplasma

Answer:Prescribe oral antibiotic prophylaxis for single-dose use with sexual intercourse

Explanation:

Women who suffer regular urinary tract infection following sexual intercourse can be offered post-coital antibiotic prophylaxis

Important for meLess important

The correct answer is prescribe oral antibiotic prophylaxis for single-dose use with sexual intercourse. NICE guidance recommends a trial of single-dose oral antibiotics for premenopausal, non-pregnant women with an identifiable trigger such as sexual intercourse, in whom behavioural and self-hygiene measures are ineffective.

NICE CKS recommends the following behavioural and self-care advice as 1st line advice for the management of recurrent UTIs:

Avoiding douching and occlusive underwear.

Wiping from front to back after defecation.

Avoiding delay of habitual and post-coital urination.

Maintaining adequate hydration.

Other behavioural patterns include constipation, washing the genital area with soap (as opposed to water only) and frequent and excessive washing of the genital area. The frequency of sexual intercourse and use of contraceptive diaphragms and/or spermicide gels or condoms has been found to highly correlate with recurrent lower UTIs in young women.

Prescribe oral antibiotic prophylaxis for daily use is not correct. This is recommended by NICE as the first line in the management of pregnant women with recurrent UTIs or in premenopausal women with no identifiable trigger where behavioural and self-care measures are ineffective. It is also recommended as a first-line for the management of men and children under 16 years with recurrent UTIs where behavioural and self-care measures are ineffective.

Daily antibiotic prophylaxis is also recommended second-line in the management of recurrent UTI in premenopausal, non-pregnant women with an identifiable trigger who continue to have recurrences with single-dose antibiotic prophylaxis regimes, and in postmenopausal women in whom topical vaginal oestrogen is not effective.

Prescribe vaginal oestrogen cream is not correct. This is recommended by NICE as the first line in the management of recurrent UTIs in postmenopausal women, where behavioural and self-hygiene measures are ineffective. This woman is premenopausal.

Refer to secondary care for further investigations such as urodynamic studies is not correct. NICE recommends either direct referral or seeking specialist advice regarding daily antibiotic prophylaxis for the following groups:

1) Men aged 16 years and over.

2) Men and women with recurrent upper UTIs.

3) Non-pregnant women with recurrent lower UTIs when the underlying cause is unknown.

4) Pregnant women.

5) Children and young people under 16 years.

6) Men and women with suspected cancer, under 2-week wait rules. For example, have persistent haematuria.

The majority of patients with recurrent lower UTIs fall under number 3, like this patient. NICE guidance specifically stipulates seeking specialist advice via advice and guidance rather than directly referring these patients:

'...however, due to resource implications and the lower risk of complications for this population, the committee agreed that specialist advice should be sought, rather than a specialist referral.'

It is not clear from NICE guidance exactly when advice and guidance should be sought, and what 'no underlying cause' exactly means. There is no clear definition of what constitutes an underlying cause. Numerous medical conditions far-ranging from diabetes, neurological diseases, and benign prostatic hyperplasia, to urinary incontinence, constipation, kidney stones and urological cancers can predispose to recurrent UTIs.

The guidance is understood to suggest behavioural measures should be optimised first. The next step is to consider a prescription of either vaginal oestrogen for postmenopausal women or single-dose antibiotic prophylaxis for premenopausal women with an identifiable trigger. Failure of these should lead to seeking advice and guidance from specialist teams regarding the need to refer for investigations, or starting daily antibiotic prophylaxis by the GP.

The patient seems to be otherwise healthy and ultrasound results suggest normal bladder function thus referral would not be considered at this stage.

Request a self-taken vulvovaginal swab for Chlamydia , Neisseria gonorrhoea and Mycoplasma is not correct. Whilst a new relationship could be taken to suggest an STI, there is no indication that this is the case here. The above organisms cause vulvovaginitis, cervicitis and pelvic inflammatory disease. These would present with symptoms of vaginal discharge, intermenstrual or post-coital bleeding, abdominal or pelvic pain or dyspareunia. Moreover, this patient seems to be adequately treated with antibiotics targeting UTIs but has recurrent infections temporally related to sexual intercourse. This makes an STI less likely as the above organisms would fail to respond to UTI antibiotics and the latter two are known to be resistant to several antibiotic classes.

Question:

A 36-year-old woman presents with a 6 week history of a painful wrist. On examination pain over the radial aspect of the wrist is is elicited by forced adduction and flexion of the thumb.

What is the most likely diagnosis?

A.Radial nerve injury

B.Ganglion

C.De Quervain's tenosynovitis

D.Scaphoid fracture

E.Trigger finger

Answer:De Quervain's tenosynovitis

Explanation:

De Quervain's tenosynovitis occurs due to inflammation the tendons on the lateral aspect of the wrist and thumb. Finkelstein's test is can be used to make the diagnosis. The hand should be deviated medially rapidly. If sharp pain occurs along the distal radius, de Quervain's tenosynovitis is likely.

Question:

A 62 year old gentleman is seen at the respiratory clinic after a mass lesion is identified by his GP on chest x-ray. He is a heavy smoker and has had a cough and weight loss for the past two months. On further questioning he admits to feeling very weak and is having difficulty getting out of a chair. On examination the consultant notices some proximal muscle wasting. Initial investigations reveal a blood pressure of 170/90mmHg and a low potassium. In addition to organising staging CT and bronchoscopy he requests a 24-hour urinary cortisol test, which is raised.

Which of the following is the most likely underlying pathology?

A.Squamous cell bronchial carcinoma

B.Large cell bronchial carcinoma

C.Carcinoid tumour

D.Small cell bronchial carcinoma

E.Bronchial adenocarcinoma

Answer:Small cell bronchial carcinoma

Explanation:

The 24 hour urinary cortisol result here suggests a diagnosis of Cushing's syndrome. The co-existant presentation of lung cancer points to paraneoplastic Cushing's syndrome. The vast majority of paraneoplastic syndromes seen in lung cancer are caused by small cell bronchial carcinoma, a neuroendocrine tumour which can secrete a variety of hormones or antibodies. In paraneoplastic Cushing's syndrome, ectopic adrenocorticotrophic hormone (ACTH) production results in a syndrome characterised by muscle weakness, hypertension, hypokalaemia and oedema. The classical features of buffalo hump and moon face are often absent.

Pelosof, Lorraine C., and David E. Gerber. Paraneoplastic Syndromes: An Approach to Diagnosis and Treatment. Mayo Clinic Proceedings 85.9 (2010): 838854. PMC. Web. 24 Apr. 2015.

Question:

A 28-year-old athlete is brought via ambulance to the emergency department following a collapse at home.

As part of the initial investigations, an ECG is performed which is shown below.

© Image used on license from Dr Smith, University of Minnesota

What is the most likely diagnosis?

A.First degree heart block

B.Left bundle branch block

C.Mobitz type 2 heart block

D.Third degree heart block

E.Wenckebach heart block

Answer:First degree heart block

Explanation:

First degree heart block is the correct answer. This image shows an ECG with an abnormally long PR interval. The PR interval should be between 3 and 5 small squares on the ECG (as each square is equivalent to 0.04 seconds the range is 0.12-0.20 seconds). It represents the time needed for the electrical conduction to reach the atrioventricular (AV) node from the sino-atrial (SA) node. In this case, this is prolonged, alluding to a potential heart block. As the PR is constantly prolonged and there are no dropped beats, this is most likely to be a first-degree heart block. The left axis deviation present is most likely to be a normal variant. This patient might need to be investigated with an exercise ECG to assess the changes in their PR interval.

Left bundle branch block is incorrect. This would produce changes in leads V1-V6. Most characteristically, there would be a prominent S wave in V1 and a prominent double R wave in V6. This can be easily remembered by the mnemonic WiLLiaM, where the letter W is what the V1 lead will look like, the letter M is what the lead V6 will look like and the L is for the left bundle branch block.

Mobitz type 2 heart block is incorrect. A Mobitz type 2 heart block would present with a contact PR interval but with random 'dropped beats'. This is because the atrioventricular connection is disrupted suddenly at times causing a lack of QRS complex following a P wave.

Third degree heart block is incorrect. If there was a third-degree heart block the QRS complexes would appear at a rate of approximately 30bpm, which would not be associated with the P waves. In other words, the atria and ventricles would be contracting in an unrelated to each other fashion.

Wenckebach heart block is incorrect. This is also known as Mobitz type 1, which would present as prolonged PR intervals that gradually become more and more prolonged until a dropped beat happens. This means a QRS complex will be missing after a few gradually prolonged PR intervals. This is not the case here.

Question:

A 28-year-old man presents with a 3-week history of watery diarrhoea, associated with fever and right upper quadrant pain, since returning from a 3-month trip to India. He has no past medical history and takes no regular medications. His temperature is 38.0ºC and there is a palpable abdominal mass in the right upper quadrant. An ultrasound scan of the liver shows a homogeneous hypoechoic round lesion.

What is the most likely diagnosis?

A.Amoebic liver abscess

B.Dengue fever

C.Giardia liver abscess

D.Malaria

E.Pyogenic liver abscess

Answer:Amoebic liver abscess

Explanation:

Returning traveller with fever, RUQ pain → ?amoebic liver abscess

Important for meLess important

Amoebic liver abscess is correct. Amoebiasis is caused by a parasite and commonly presents with subacute diarrhoea and colitis. The spread of the infection from the intestine commonly results in an amoebic liver abscess. Amoebiasis is endemic in India, China, Africa, and South America. Diagnosis would be confirmed by stool antigen detection and treatment would be with metronidazole/tinidazole with/without image-guided drainage of the abscess.

Giardiasis is incorrect. It is a cause of chronic diarrhoea due to a parasite. However, it is not associated with liver abscesses.

Dengue fever is incorrect. It is also endemic in India however it presents with nausea, vomiting, headache and fever rather than diarrhoea.

Malaria is incorrect. It is a common diagnosis in the returning traveller with fever. However, it typically presents with fever, myalgia and headache. Hepatosplenomegaly can occur however the description of a homogeneous hypoechoic round lesion found in this patient is more consistent with an abscess than hepatomegaly.

Pyogenic liver abscess is incorrect. It would have a similar USS appearance however it would not be associated with travellers' diarrhoea. Furthermore, it usually occurs in those with a history of hepatobiliary or pancreatic disease.

Question:

A 10-month-old boy is brought to surgery. Around 4 days ago he developed a fever after being irritable the previous day. The fever settled after around 3 days but following this he developed a rash, which prompted his mother to bring him to surgery. He is taking around 75% of his normal feeds, is producing wet nappies and has had two episodes of loose stools. On examination he is alert, temperature is 37.0ºC, chest is clear, ears/throat unremarkable. There are a number of blanching, rose pink macules present on his trunk. What is the most likely diagnosis?

A.Rubella

B.Chickenpox

C.Roseola infantum

D.Pityriasis rosea

E.Measles

Answer:Roseola infantum

Explanation:

Roseola infantum - fever followed later by rash

Important for meLess important

Question:

A 72-year-old woman comes to the emergency department with chest pain, palpitations, shortness of breath and dizziness. She has a past medical history of depression, poorly controlled COPD and allergies. Some of the medications she took recently include salbutamol, sertraline, erythromycin, gentamicin and promethazine.

On physical examination, her heart rate is 120 beats/min and her blood pressure is 83/50mmHg. An ECG shows ventricular tachycardia with prolonged QT intervals and rapid polymorphic QRS complexes.

Given this information, what is the most likely drug to have caused this presentation?

A.Erythromycin

B.Gentamicin

C.Promethazine

D.Salbutamol

E.Sertraline

Answer:Erythromycin

Explanation:

Macrolides can cause torsades de pointes

Important for meLess important

Torsades de pointes is a form of polymorphic ventricular tachycardia associated with a prolonged QT interval. Patients can present with symptoms such as palpitations, tachycardia, chest pain, shortness of breath, hypotension and syncope.

The correct answer is erythromycin. Macrolides such as erythromycin can lead to a prolonged QT interval which is associated with torsades de pointes. Other side effects include GI upset, acute cholestatic hepatitis and eosinophilia.

Gentamicin is incorrect, it is an aminoglycoside. Side effects of gentamicin include ototoxicity and nephrotoxicity. Gentamicin is not associated with torsades de pointes.

Promethazine is incorrect, it is a first-generation anti-histamine. It can cause side effects such as sedation and anticholinergic effects such as dry mouth, dry skin, mydriasis, confusion, and agitation. Promethazine is not associated with torsades de pointes.

Salbutamol is incorrect. It is a beta-2-agonist and can cause side effects such as headaches, palpitations and tremors. Salbutamol is not associated with torsades de pointes.

Sertraline is incorrect and it is a SSRI. Some SSRIs such as citalopram and escitalopram can cause torsades de pointes. Side effects of sertraline include serotonin syndrome, insomnia and agitation. Serotonin syndrome can occur if taken with drugs that increase serotonin levels such as MAO inhibitors, SNRIs, TCAs and ondansetron. Sertraline is not typically associated with torsades de pointes.

Question:

A 45-year-old woman presents to her general practitioner with a 2-month history of altered bowel habits. She describes that her bowel movements are much looser than usual, occasionally noticing red blood mixed in with the stool.

The patient is referred for an urgent endoscopy, showing many adenomatous polyps in the descending colon. The patient is referred for genetic testing, confirming the diagnosis of Lynch syndrome, otherwise known as hereditary non-polyposis colorectal cancer.

Other than colorectal cancer, what malignancy is this woman most at risk of developing?

A.Endometrial cancer

B.Hepatocellular carcinoma

C.Ovarian cancer

D.Pancreatic cancer

E.Renal cell carcinoma

Answer:Endometrial cancer

Explanation:

Endometrial cancer is the second most common association of HNPCC after colorectal cancer

Important for meLess important

Endometrial cancer is correct. After colorectal cancer, this is the second most common malignancy associated with HNPCC, followed by gastric cancer.

Hepatocellular carcinoma is incorrect. This is not associated with HNPCC. Hepatocellular carcinoma is associated with cirrhosis and infection with hepatitis B and C.

Ovarian cancer is incorrect. Although this is associated with HNPCC, the risk of endometrial cancer is much greater. Mutations in BRCA1, BRCA2, and RAD51 genes are associated with familial ovarian and breast cancer syndromes.

Pancreatic cancer is incorrect. This is not associated with HNPCC. Risk factors for pancreatic cancer include male sex, smoking, obesity, and chronic pancreatitis.

Renal cell carcinoma is incorrect. This is not associated with HNPCC. Von Hippel-Lindau syndrome is a genetic syndrome associated with renal cell carcinoma. Risk factors for renal cell carcinoma include male sex, smoking, and obesity.

Question:

A 72-year-old woman presents to you in general practice with ankle swelling. She has recently been initiated on a new blood pressure medication. The patient blames this for the development of her ankle oedema and would like you to investigate.

What is the most likely medication to have caused her ankle swelling?

A.Diltiazem

B.Doxazosin

C.Lisinopril

D.Nifedipine

E.Verapamil

Answer:Nifedipine

Explanation:

Dihydropyridines (e.g. amlodipine) are more likely to cause ankle swelling than verapamil

Important for meLess important

Nifedipine is the correct answer. The patient has been recently started on a new antihypertensive which has coincided with ankle swelling. Dihydropyridine calcium-channel blockers (CCBs), such as nifedipine, are well known to cause ankle oedema. These medications result in ankle oedema by causing vasodilation and increasing the 'leakiness' of small blood vessels. This action helps reduce blood pressure, but also leads to more fluid moving into the interstitial space resulting in oedema.

Diltiazem is an incorrect answer. It is a rate-limiting CCB and is indicated for angina, arrhythmias and hypertension. These medications are more likely to precipitate heart failure, but less likely to cause ankle oedema.

Doxazosin is the incorrect answer. It is an alpha-blocker used to treat hypertension and benign prostatic hyperplasia. This class is known to cause oedema, however it is less commonly used than amlodipine and less likely to cause oedema.

Lisinopril is an incorrect answer. Angiotensin-converting-enzyme (ACE) inhibitors, such as lisinopril, are more likely to cause angioedema than peripheral oedema. Although peripheral oedema is recognised as an uncommon side-effect of these medications in the BNF.

Verapamil is an incorrect answer. Like diltiazem, it is a rate-limiting CCB and therefore less likely to cause ankle oedema than dihydropyridine CCBs.

Question:

A 21-year-old woman presents to the doctor complaining that she has been experiencing persistent intrusive thoughts and repetitive behaviours, specifically concerns about contamination and excessive handwashing, which have been gradually increasing, negatively affecting her hands as a result.

On further questioning, she reports persistent thoughts about harming others that make her avoid sharp objects due to fear, all of this has caused her to miss work and avoid social situations, causing a significant negative impact on her daily functioning.

What is the most appropriate course of action?

A.Advise the patient to try mindfulness and relaxation techniques on their own

B.Prescribe a mood stabilizer and refer the patient for psychoanalytic therapy

C.Refer for exposure-response therapy (ERP) with a specialist

D.Refer to a secondary care mental health team for assessment and start treatment with a selective serotonin reuptake inhibitor whilst waiting for the assessment

E.Start treatment with a selective serotonin reuptake inhibitor (SSRI)

Answer:Refer to a secondary care mental health team for assessment and start treatment with a selective serotonin reuptake inhibitor whilst waiting for the assessment

Explanation:

OCD: all patients with severe functional impairment should be referred to the secondary care mental health team - treatment can be started whilst waiting for assessment

Important for meLess important

Refer the patient to a secondary care mental health team for assessment and start treatment while waiting for the assessment is the correct answer. NICE guidelines recommend that OCD patients with severe functional impairment, as in the case above, should be referred to the secondary care mental health team as they may require more intensive or specialist interventions, such as cognitive behavioural therapy (CBT) or individually-tailored medication management. The doctor can start treatment whilst waiting for the assessment such as prescribing an SSRI, as they can take weeks to work.

Advising the patient to try mindfulness and relaxation techniques on their own is not correct. Whilst they can be effective this does not address the patient's severe functional impairment as a result of their persistent intrusive thoughts and repetitive behaviours. Although these techniques may be beneficial for some individuals and as an adjunct therapy, they are unlikely to be sufficient in addressing the patient's specific symptoms.

Prescribing a mood stabilizer and referring the patient for psychoanalytic therapy is not correct. It may be suited in cases where the patient is presenting with symptoms of mood instability in addition to obsessive-compulsive disorder (OCD) symptoms, particularly relevant in cases where the patient has a history of bipolar disorder. However, in the specific case presented in the question, where the patient is primarily displaying symptoms of OCD with severe functional impairment, this answer would not be the most appropriate course of action as it does not address the specific symptoms presented and may not be the most effective treatment for those symptoms.

Refer the patient for exposure-response therapy (ERP) alone is not correct. In this case the patient is presenting with a history of persistent intrusive thoughts and repetitive behaviours that are causing severe functional impairment. NICE guidelines recommend that patients with severe functional impairment, as in this case, should be referred to the secondary care mental health team for assessment and treatment. They may require more intensive or specialist interventions, such as cognitive behavioural therapy (CBT) or medication management. Whilst ERP is a specific type of CBT however it is not enough to address the complexity of the patient's symptoms and the level of functional impairment that is currently being experienced.

Start treatment with a selective serotonin reuptake inhibitor (SSRI) is not correct. Whilst SSRIs can be very effective, this patient presents with persistent intrusive thoughts, repetitive behaviours, and severe functional impairment. Hence, a more comprehensive approach that includes both medication management and appropriate therapy from a specialist team is needed to effectively address the patient's symptoms.

Question:

A 47-year-old woman is referred to the dermatology clinic with a 6-month history of an itchy rash. She describes the rash as feeling constantly dry and is affecting her self-confidence. In the last 2 weeks, she was prescribed a new medication from her general practitioner that seems to have made the rash worse. There is no history of new detergent use and she has no known allergies. Her past medical history includes anxiety, hypertension, gastritis and recurrent urinary tract infections.

On examination, there are well-defined red plaques of dry skin with a silver-coloured scale. The plaques are mostly seen over the elbows, knees and shins.

Which of the following has most likely caused the above presentation?

A.Codeine

B.Indapamide

C.Nitrofurantoin

D.Omeprazole

E.Propranolol

Answer:Propranolol

Explanation:

Beta-blockers are known to exacerbate plaque psoriasis

Important for meLess important

This patient likely has a diagnosis of plaque psoriasis, characterised by well-circumscribed red, scaly plaques of dry skin commonly seen on the extensor surfaces such as the elbows, knees and shins. The clinical history suggests that the rash worsened following the addition of a new medication. There are multiple triggers for worsening psoriasis including alcohol, smoking, stress, discontinuing steroids or initiating NSAIDs, lithium, antimalarials and beta-blockers such as this patient's propranolol. Whilst this patient needs to be initiated on treatment for her psoriasis, propranolol has most likely exacerbated her symptoms and should be discontinued.

Codeine and other opioids are known to cause chronic urticaria. However, they do not exacerbate psoriasis and would be safe to continue in this patient.

Indapamide is a thiazide-like diuretic that can cause photosensitivity reactions in sun-exposed parts of the skin. However, typically the rash will appear as a purplish discolouration rather than plaques of dry skin with a silvery scale. The rash described in this question is much more typical of psoriasis. Indapamide does not exacerbate psoriasis and can be continued.

Nitrofurantoin can cause a number of skin reactions from allergic to severe drug reactions such as Steven Johnson's syndrome. However, it does not exacerbate psoriasis.

Omeprazole can cause cutaneous reactions and photosensitivity but it is unlikely to be responsible for this patient's exacerbation.

Question:

A 65-year-old woman presents to the emergency department with a one-week history of fatigue and shortness of breath. The examination was unremarkable. In particular, there is no evidence of bleeding on systematic inquiry or examination.

Blood results are as follows:

Hb 82 g/L Male: (135-180)

Female: (115 - 160)

Reticulocytes 442 \* 109/L (50-100)

Platelets 162 \* 109/L (150 - 400)

WBC 12.8 \* 109/L (4.0 - 11.0)

Bilirubin 66 µmol/L (3 - 17)

ALP 42 u/L (30 - 100)

ALT 28 u/L (3 - 40)

γGT 44 u/L (8 - 60)

Albumin 36 g/L (35 - 50)

What abnormality would be in keeping with the likely diagnosis?

A.Low ADAMTS13 level

B.Low LDH

C.Low haptoglobin

D.Negative DAT

E.Raised haptoglobin

Answer:Low haptoglobin

Explanation:

Haptoglobin binds to free haemoglobin

Important for meLess important

Anaemia with reticulocytosis is suggestive of haemolysis or bleeding. The markedly raised bilirubin with otherwise normal LFTs is more in keeping with haemolysis, however, it is important to remember that haemorrhage can also result in increased bilirubin levels. Haemolysis results in the release of free haemoglobin. Haptoglobin is produced in the liver, and its primary function is to bind to free haemoglobin. Therefore low haptoglobins is a key feature of haemolysis. It is important to remember that liver dysfunction can also result in low haptoglobins since they are produced by the liver.

Haemolysis is associated with a raised LDH (due to increased cell turnover), rather than a low LDH.

A positive DAT (rather than a negative DAT) is associated with autoimmune haemolytic anaemia. However, it is important to remember that there are a wide variety of causes of haemolysis including both immune and non-immune mediated mechanisms.

Thrombotic thrombocytopenic purpura (TTP) can cause haemolysis as part of the microangiopathic haemolytic anaemia process, however, this condition would be associated with thrombocytopenia. A low ADAMTS13 level would confirm the diagnosis of TTP.

Question:

A 42-year-old woman presents with a 1-month history of marked fatigue. She has had initial 'tired all the time' blood tests 2 weeks ago, which were unremarkable. Alongside, she also describes a 1-week history of paraesthesia to her legs bilaterally.

What prompted the review today however was worsening right-sided eye pain on eye movement and some loss of colour vision.

What is the most likely underlying diagnosis?

A.Lyme disease

B.Multiple sclerosis

C.Myasthenia gravis

D.Sarcoidosis

E.Systemic lupus erythematosus

Answer:Multiple sclerosis

Explanation:

Lethargy is a very common early symptom of multiple sclerosis

Important for meLess important

Multiple sclerosis is an autoimmune condition that affects the myelin within the brain and spinal cord. It can cause a wide array of different symptoms. Lethargy is a very common early symptom. The paraesthesia in the limbs would coincide with this but, in particular, she describes symptoms of optic neuritis which can often be the first presenting feature.

Lyme disease can sometimes mimic some of the features of multiple sclerosis, including optic neuritis. However, there is nothing in the history that would suggest a tick bite.

Myasthenia gravis is an autoimmune condition affecting the neuromuscular junction. It causes weakness and fatiguability, not classically paresthesia or optic neuritis.

Sarcoidosis is a potential option here as it is a systemic inflammatory disease which often presents with fatigue. Neurosarcoidosis affects the nervous system, which can cause peripheral neuropathy and occasionally optic neuritis. However, multiple sclerosis is much more likely to cause optic neuritis.

Systemic lupus erythematosus is an autoimmune condition which causes inflammation to a variety of organs. It often presents with fatigue and, although possible, is more unusual to present with peripheral neuropathy and optic neuritis.

Question:

A 30-year-old patient is referred to the haematology clinic after a pre-operative workup, for a minor procedure, identified an isolated neutropenia (result below). The patient is well, with no clinical symptoms and a normal examination.

Haemoglobin 140 g/L 130–180

White cell count 4.0×109/L 4.0–11.0

Neutrophils 1.2 ×109 2.0 - 7.5

Platelet count 253 ×109/L 150–400

Once a clear past medical history and examination is established the neutropenia is diagnosed as a benign condition of no consequence and no further investigation is required.

In which ethnicity group is this benign haematological finding common?

A.Black African and Afro-Caribbean

B.Caucasian

C.Hispanic/Latino

D.Mediterranean

E.Southeast Asian

Answer:Black African and Afro-Caribbean

Explanation:

Benign ethnic neutropaenia is common in people of black African and Afro-Caribbean ethnicity

Important for meLess important

Benign ethnic neutropenia is a form of chronic neutropenia and is commonly seen in black African and Afro-Caribbean. The mechanism of the condition is not fully understood but it is believed to be a result of decreased mature granulocyte reserve and release from the bone marrow. Clinically the condition is benign with patients being at no higher risk for infection or complications however due to its unfamiliarity amongst physicians, otherwise health patients often undergo unnecessary investigation when the neutropenia is first identified.

Although some haematological malignancies including specific types of leukaemia have a higher prevalence in those of Caucasian ethnicity there is no clear association of neutropenia within this group.

Again a higher rate of certain haematological malignancies have been observed in those of Hispanic/Latino ethnicity but there is no clear association with neutropenia.

The haematological condition classically observed in those of Mediterranean ethnicity is the haemoglobinopathy beta-thalassemia where patients have reduced or absent synthesis of the haemoglobin beta chains resulting in varying degrees of anaemia. Benign ethnic neutropenia has not been associated with this ethnic group.

Certain types of thalassemia, haemoglobinopathies (e.g. haemoglobin E disorders) and glucose-6-phosphate dehydrogenase (G6PD) deficiency have all been observed in higher prevalence within those of Southeast Asian ethnicity however benign ethnic neutropenia is not associated with this group.

Question:

A 52-year-old man with a history of alcohol dependence is admitted with fever and feeling generally unwell. An admission chest x-ray shows consolidation in the right upper lobe with early cavitation. What is the most likely causative organism?

A.Streptococcus pneumoniae

B.Legionella pneumophilia

C.Staphylococcus aureus

D.Klebsiella pneumoniae

E.Mycoplasma pneumoniae

Answer:Klebsiella pneumoniae

Explanation:

Pneumonia in an alcoholic - Klebsiella

Important for meLess important

Question:

A 34-year-old woman from Chad presents with continuous dribbling incontinence after having her 2nd child. Apart from prolonged labour the woman denies any complications related to her pregnancies. She is normally fit and well. What is the most likely diagnosis?

A.Vesicovaginal fistula

B.Stress urinary incontinence

C.Overactive bladder syndrome

D.Colovesical fistula

E.Pudendal neuropathy

Answer:Vesicovaginal fistula

Explanation:

Vesicovaginal fistulae should be suspected in patients with continuous dribbling incontinence after prolonged labour and from an area with limited obstetric services.

Question:

A 25-year-old woman attends the sexual health clinic. She states that she has had 7 male sexual partners over the last 4-months and has not used protection on any occasion. Her last episode of unprotected sex was 5 weeks ago.

The patient's regular medications consist of hydroxychloroquine for systemic lupus erythematosus (SLE), the progesterone-only pill for contraception, and azathioprine for Crohn's disease.

Her results are below:

Trichomoniasis Negative

HIV Negative

Syphilis VDRL Positive

Syphilis TP-EIA Negative

What is the most likely interpretation of these results?

A.False positive syphilis result due to azathioprine use

B.False positive syphilis result due to progesterone-only pill use

C.False positive syphilis result due to systemic lupus erythematous (SLE)

D.Not enough time has passed to interpret correctly

E.Positive syphilis diagnosis

Answer:False positive syphilis result due to systemic lupus erythematous (SLE)

Explanation:

False positive VDRL/RPR: 'SomeTimes Mistakes Happen' (SLE, TB, malaria, HIV)

Important for meLess important

False positive syphilis result due to systemic lupus erythematosus (SLE) is correct. This patient has a positive VDRL result. VDRL is a non-specific test for syphilis and so can become positive in several different conditions such as SLE, TB and pregnancy. This is because the VDRL test looks for non-specific antibodies and conditions such as SLE can cause a false-positive result.

False positive syphilis result due to azathioprine use is incorrect. Azathioprine has no impact on VDRL and so would not be responsible for a false-positive syphilis result.

False positive syphilis result due to progesterone-only pill use is incorrect. The progesterone-only pill has no impact on VDRL and so would not be responsible for a false-positive syphilis result.

Not enough time has passed to interpret correctly is incorrect. Blood-borne STIs testing can be undertaken once 4-weeks have lapsed following sexual intercourse. As this patient had her last unprotected sexual encounter 5-weeks ago, the results can be interpreted.

Positive syphilis diagnosis is incorrect. A positive syphilis diagnosis would require a positive TP-EIA and a positive VDRL. As this patient only has a positive VDRL test she is unlikely to have a positive syphilis diagnosis.

Question:

Please look at the image below, showing a subungual fibroma:

© Image used on license from DermNet NZ

Which condition are these most commonly associated with?

A.Rheumatoid arthritis

B.Tuberous sclerosis

C.Wilson's disease

D.Neurofibromatosis

E.Psoriasis

Answer:Tuberous sclerosis

Explanation:

Tuberous sclerosis - subungual fibromata

Important for meLess important

Question:

Which one of the following features is least consistent with Trichomonas vaginalis

A.Strawberry cervix

B.Vulvovaginitis

C.Vaginal pH < 4.5

D.Urethritis in men

E.Frothy green discharge

Answer:Vaginal pH < 4.5

Explanation:

Trichomonas vaginalis + bacterial vaginosis are associated with a pH > 4.5

Important for meLess important

Question:

A 55-year-old man presents to the Emergency Department with a short history of 24 hours of dark urine, pale stools and right upper quadrant pain. He mentions he is a part-time teacher and smokes 10 cigarettes a day. He has no relevant past medical history and is not on any medications.

On examination, his sclera appear yellow and his BMI is 29 kg/m².

Which of the following investigations will be the most valuable?

A.Serum cholesterol

B.Urinary urobilinogen

C.Urinary bilirubin

D.Alkaline phosphatase and γGT

E.Ultrasound of abdomen

Answer:Ultrasound of abdomen

Explanation:

Ultrasound of abdomen is the correct answer, as this will most likely show the cause i.e. gallstones present or not. Urinary bilirubin/urobilinogen will merely confirm an obstructive jaundice picture and alkaline phosphatase and γGT also confirms a cholestatic picture. Testing serum cholesterol will only show increased cholesterol levels, which is due to him having hypercholesterolaemia so isn't very specific and doesn't address the cause.

Question:

A 45-year-old man presents to the emergency department complaining of fatigue, malaise and yellow eyes. He has no past medical history. He does not take any regular medications. He drinks approximately 80 units of alcohol a week.

On examination, he is jaundiced and there is tender hepatomegaly. There is no ascites. The Glasgow coma scale is 15/15.

Blood tests:

Hb 130 g/L Male: (135-180)

Female: (115 - 160)

Platelets 189 \* 109/L (150 - 400)

WBC 18.2 \* 109/L (4.0 - 11.0)

Na+ 133 mmol/L (135 - 145)

K+ 4.2 mmol/L (3.5 - 5.0)

Urea 4.2 mmol/L (2.0 - 7.0)

Creatinine 88 µmol/L (55 - 120)

CRP 45 mg/L (< 5)

Bilirubin 85 µmol/L (3 - 17)

Bicarbonate 21 mmol/L (22-26)

ALP 88 u/L (30 - 100)

ALT 82 u/L (3 - 40)

γGT 142 u/L (8 - 60)

AST 165 u/L (10-40)

Albumin 34 g/L (35 - 50)

PT time 24.5 seconds (9.5-13.5)

What is the most appropriate management?

A.Lactulose

B.Liver transplant

C.Pentoxifylline

D.Prednisolone

E.Rifaximin

Answer:Prednisolone

Explanation:

Corticosteroids are used in the management of severe alcoholic hepatitis

Important for meLess important

Prednisolone is correct. This patient presents with fatigue, malaise, jaundice in association with tender hepatomegaly on a background of fatty liver and alcohol excess. Together with supportive biochemistry (hyperbilirubinemia, transaminitis with AST > ALT, leucocytosis and raised CRP), this suggests a diagnosis of alcoholic hepatitis. Maddrey's discriminant score is used to guide whether prednisolone should be given in alcoholic hepatitis. A score > 32 is associated with a poor prognosis and prednisolone treatment is indicated in these cases. In this case, the score is 62.5 (based on a PT time of 24.5 seconds bilirubin of 85 µmol/L).

Lactulose is incorrect. This is used in patients with cirrhosis to ensure 2-3 loose stools a day and so treat and prevent cases of hepatic encephalopathy. This patient is not known to be cirrhotic and is not confused.

Pentoxifylline is incorrect. This can also be used to treat severe alcoholic hepatitis. However, in a head to head comparison it was inferior to prednisolone.

Rifaximin is incorrect. This is used to prevent hepatic encephalopathy, which is not present in this case.

Liver transplant is incorrect. The majority of cases of alcoholic hepatitis resolve with abstinence from alcohol +/- steroid treatment. Additionally, the need for a liver transplant in acute liver failure is typically indicated either by a pH < 7.3 after fluid resuscitation or all three of the following: creatinine > 300 umol/L, PT time > 100 seconds and grade III/IV encephalopathy. The bicarbonate is only very mildly low in this case (21) and we might expect this to improve with abstinence, fluid and treatment with steroids. Therefore, a liver transplant would not be the first intervention.

Question:

A 64-year-old man presents to his GP, concerned about swelling of his chest that seems to have arisen over the past few months, around the nipples. He denies any discharge from the nipples, and otherwise feels generally well in himself. His past medical history includes hypertension, prostate cancer, recurrent nausea, osteoarthritis and depression. His regular medications include amlodipine, goserelin, metoclopramide, naproxen and sertraline.

On examination, bilateral breast tissue is visible and palpable. No discharge is present from the nipples.

Which of his medications is most likely to have caused this presentation?

A.Amlodipine

B.Goserelin

C.Metoclopramide

D.Sertraline

E.Tamoxifen

Answer:Goserelin

Explanation:

GnRH agonists (e.g. goserelin) used in the management of prostate cancer may result in gynaecomastia

Important for meLess important

The correct answer is goserelin. The finding being described here is gynaecomastia - the development of breast tissue in men. Of the drugs listed, the most likely cause is goserelin, a GnRH agonist which this patient is taking for prostate cancer. It is known to cause gynaecomastia. The most common drug cause, however, is spironolactone.

Amlodipine is incorrect. This is a calcium-channel blocker, and there have been a few isolated case reports of an association between these drugs and gynaecomastia, but this is incredibly rare. The most likely cause is still goserelin.

Metoclopramide is a dopamine antagonist used in the management of nausea and vomiting. It is known to cause galactorrhoea - secretion of milk from the nipples - but not gynaecomastia. Dopamine normally inhibits prolactin, which is responsible for milk secretion, and so antagonising dopamine results in increased prolactin levels.

Sertraline is a selective serotonin reuptake inhibitor, used in the management of depression and anxiety. There are a few case reports of an association with gynaecomastia and galactorrhoea, although this is very rare.

Tamoxifen is a selective oestrogen receptor modulator used to treat breast cancer. Rather than being a cause of gynaecomastia, it can actually be used to treat it. It is licensed for this use (according to the BNF) in patients who are receiving treatment for prostate cancer and develop gynaecomastia as a result of their treatment.

Question:

A 22-year-old man is brought to the emergency department with severe abdominal pain, nausea, and vomiting. He is difficult to rouse and his heart rate is 95 bpm, his blood pressure is 96/65 mmHg, his respiratory rate is 26 /min, and his oxygen saturations are 96% on room air.

A venous blood gas is performed:

pH 7.12 (7.35 - 7.45)

PO2 6.1 kPa (4.0 - 5.3)

PCO2 3.5 kPa (5.5 - 6.8)

Bicarbonate 11.0 mmol/L (22.0 - 28.0)

Glucose 25.7 mmol/L (4.0 - 11.0)

Lactate 7 mmol/L (0.5 - 1.6)

Ketones 4.0 mmol/L (<0.6 mmol/L)

What is the most appropriate immediate step in management?

A.1L IV 0.9% sodium chloride over 1 hour

B.1L IV 0.9% sodium chloride with potassium chloride

C.IV fast-acting insulin over 15 minutes

D.IV fixed-rate insulin infusion at 0.05 units/kg/hr

E.IV fixed-rate insulin infusion at 0.1 units/kg/hr

Answer:1L IV 0.9% sodium chloride over 1 hour

Explanation:

Diabetic ketoacidosis: isotonic saline should be used initially, even if the patient is severely acidotic

Important for meLess important

1L IV 0.9% sodium chloride over 1 hour is correct. This patient has signs and symptoms of diabetic ketoacidosis (DKA) characterised by abdominal pain, fluctuating consciousness, nausea, and vomiting on a background of hyperglycaemia. The presence of metabolic acidosis (low pH and low bicarbonate) along with raised lactate and ketones supports this diagnosis. The PO2 is raised and the PCO2 is lower due to the patient hyperventilating in an attempt to remove as much CO2 as possible to try and compensate for the metabolic acidosis. All patients with DKA should initially be treated with IV isotonic (0.9%) saline, even if they are severely acidotic, as most patients in DKA deplete around 5-8 L and are severely dehydrated. Since this patient's systolic blood pressure is above 90 mmHg and they are not in shock, this is given as 1L of 0.9% saline over an hour, rather than a stat 500 ml bolus. The insulin is then given after as a fixed-rate infusion at 0.1 units/kg/hr.

1L IV 0.9% sodium chloride with potassium chloride is incorrect. Although patients with DKA should be given fluids first, even if severely acidotic, we do not yet know their potassium measurement, and giving too much potassium carries the risk of arrhythmias which can be fatal. Bags of potassium chloride can then be added once the patient's serum potassium has been determined, but the most crucial part is rehydrating the patient.

IV fixed-rate insulin infusion at 0.05 units/kg/hr is incorrect. The first and most essential step of managing DKA is giving IV isotonic saline, even before giving insulin, regardless of how severely acidotic they are due to patients in DKA being dehydrated and depleting around 5-8 L of fluid. Insulin can then be started after the fluids. Also, this infusion rate is used in the management of hyperosmolar hyperglycaemic state, not diabetic ketoacidosis.

IV fast-acting insulin over 15 minutes is incorrect. The first and most essential step of managing DKA is giving IV isotonic saline, even before giving insulin, regardless of how severely acidotic they are due to patients in DKA being dehydrated and depleting around 5-8 L of fluid. Insulin can then be started after fluids are, however it is given as a fixed-rate infusion at 0.1 units/kg/hr. Fast-acting forms are not given.

IV fixed-rate insulin infusion at 0.1 units/kg/hr is incorrect. The first and most essential step of managing DKA is giving IV isotonic saline, even before giving insulin, regardless of how severely acidotic they are due to patients in DKA being dehydrated and depleting around 5-8 L of fluid. Insulin can then be started after the fluids.

Question:

A 64-year-old lady presents to the emergency department with a painful calf. On examination, she has a painful right calf which has swollen by 2cm when compared to the left. Her Wells score is calculated to be 1. A D-dimer is ordered which is positive.

Given the current presentation which of the following is the next best step in the management of this patient?

A.Arrange a Doppler ultrasound of the affected leg

B.Arrange a CT scan of the affected leg

C.Give treatment dose low molecular weight heparin

D.Give alteplase

E.Give warfarin

Answer:Arrange a Doppler ultrasound of the affected leg

Explanation:

This question is asking about the investigation of a patient with a suspected DVT. Once a D-dimer has been ordered and found to be positive, the next best step is to order a leg vein ultrasound scan (Doppler ultrasound).

There is no place for a CT scan in the investigation of a DVT.

The remaining 3 options are al incorrect as they begin treatment before finishing investigating this patient.

Question:

A 27-year-old G2P1 woman is admitted to the maternity ward following the onset of regular contractions. The midwife performs a vaginal examination and confirms that the mother is in the first stage of labour.

At what point does this stage of labour finish?

A.10 cm cervical dilation

B.4cm cervical dilatation

C.6cm cervical dilation

D.Birth of foetus

E.Complete engagement of the foetus

Answer:10 cm cervical dilation

Explanation:

1st stage of labour: from the onset of true labour to when the cervix is fully dilated

Important for meLess important

Labour is split into three different stages, the first of which involves the onset of regular contractions and gradual dilation of the cervix. This stage ends once at 10cm cervical dilation when the cervix is considered fully effaced.

4cm cervical dilatation occurs during the first stage of labour. However, this stage does not end until dilatation reaches 10cm, so this is not the correct answer.

6cm cervical dilation occurs during the first stage of labour, which doesn't finish until cervical dilation reaches 10cm. Therefore this is not the correct answer.

The birth of the foetus defines the end of the second stage of labour, not the first.

Complete engagement of the foetus is not used when defining the first stage of labour, is therefore incorrect.

Question:

A 66-year-old man attends the emergency department with a productive cough and increasing lethargy. He has a history of hypertension for which he takes amlodipine 5mg. He is mildly confused and needs several prompts to follow commands.

His observations are as follows:

Temperature 38.1ºC

Heart rate 101bpm

Blood pressure 121/65mmHg

Respiratory rate 34 breaths/min

Oxygen saturations 93% on room air

Chest x-ray shows:

© Image used on license from Radiopaedia

What is the most likely diagnosis?

A.Left lower lobe collapse

B.Left middle lobe pneumonia

C.Right lower lobe pneumonia

D.Right middle lobe collapse

E.Right middle lobe pneumonia

Answer:Right middle lobe pneumonia

Explanation:

This patient's chest x-ray (CXR) shows an opacification below the horizontal fissure that partly obscures the right heart border. This is in keeping with a right middle zone opacification. Given the clinical history of a productive cough and fever, it is likely that this CXR finding is a right middle lobe consolidation, in keeping with a community-acquired pneumonia (CAP). When assessing a patient with a CAP, it is important to calculate the CURB-65 score to determine the severity and guide management.

A left lower lobe collapse presents as a triangular opacity obscuring the left lower lobe (i.e. sail sign). The left hemidiaphragm and descending aorta may also be obscured. However, the changes seen in this CXR are in the right middle lobe, in contrast to the left lower lobe.

The left lung comprises 2 lobes (upper and lower), compared to the right lung that has an upper, middle and lower lobe. Although it appears that there is consolidation on the left side of the chest x-ray, that may mimic left middle lobe pneumonia, these changes are in fact in the right lung and represent right middle lobe pneumonia.

A right lower lobe pneumonia would also present as a consolidation beneath the horizontal fissure. However, typically a right lower lobe pneumonia would obscure the hemidiaphragm which is not seen here.

A right middle lobe collapse can be subtle to detect on a CXR. However, signs include an obscured right heart border, elevation of the right hemidiaphragm and loss of the horizontal fissure. Furthermore, the clinical history of fever and productive cough make the clinical diagnosis more in keeping with pneumonia.

Question:

A 76-year-old woman presents with post-menopausal bleeding for the past 4 months. She is diagnosed with well-differentiated adenocarcinoma (stage II) on endometrial biopsy. There is no evidence of metastatic disease. Which is the most appropriate treatment?

A.Transcervical endometrial resection

B.Total abdominal hysterectomy

C.Provera (medroxyprogesterone acetate)

D.Wertheim's radical hysterectomy

E.Total abdominal hysterectomy with bilateral salpingo-oophorectomy

Answer:Total abdominal hysterectomy with bilateral salpingo-oophorectomy

Explanation:

Total abdominal hysterectomy with bilateral salpingo-oophorectomy is the treatment of choice for stage I and II endometrial carcinoma. Provera is a progesterone used as a hormonal treatment for endometrial carcinoma - it acts by slowing the growth of malignant cells in the endometrium. Wertheim's radical hysterectomy includes removal of lymph nodes and is used to treat stage IIB endometrial carcinoma.

Question:

A 24-year-old woman presents to the emergency department with epistaxis. First-aid measures are commenced and she sits leaning forward with pressure on the upper cartilaginous portion of her nose for 20 minutes. The bleeding does not stop and on examination, the bleeding source is identified on the anterior part of her septum in the left nostril.

What management is most appropriate in this situation?

A.Nasal packing

B.Referral to ENT for sphenopalatine ligation

C.Referral to haematology for potential bleeding disorder

D.Silver nitrate cautery of the bleeding source

E.Continue first aid measures for another 10 minutes

Answer:Silver nitrate cautery of the bleeding source

Explanation:

Epistaxis from an anterior bleeding source that is visualized is treated with silver nitrate cautery

Important for meLess important

In a patient who has first-aid measures for more than 15 minutes without cessation of bleeding, further management is required. In this case, since the bleeding source is visible, the best option would be to cauterise the bleeding source and then apply an appropriate nasal ointment.

Nasal packing could also be an alternative option and may be done in some situations. However, since the bleeding source was easily identifiable on examination, the better option, in this case, would be to cauterise the bleeding source. Nasal packing would be the solution in this case if the bleeding source was not identified.

Referral to ENT for sphenopalatine ligation is not required yet in this situation. If the cautery or packing were attempted and the patient continued to bleed and the patient began to develop haemodynamic issues, then a sphenopalatine ligation may be required in theatres as an emergency procedure.

Referral to haematology is not required yet in this situation. It may be indicated after initial investigations where a suspected bleeding disorder was identified. This would only be done after first aid and emergency management options to control epistaxis were completed.

Continuing first aid measures would be inappropriate. She has already trialled 20 minutes of these measures without an effect and the guidelines suggest 10-15 minutes of first aid measures prior to considering cautery or packing. Ongoing bleeding for another 10 minutes could predispose this patient to haemodynamic instability.

Question:

You are called to see a 64-year-old woman on the surgical ward who has a heart rate of 160 bpm and a blood pressure of 80/50 mmHg. She is alert and seems unaware of her fast heart rate. An electrocardiogram (ECG) shows a narrow-complex tachycardia with a rate of 174 bpm. You look at her notes and see she was deemed medically fit for discharge earlier in the day after an umbilical hernia repair a week ago. Her past medical history includes asthma and hypertension.

What immediate treatment should this woman receive?

A.Adenosine

B.Amiodarone

C.Direct current (DC) cardioversion

D.Vagal manoeuvres

E.Verapamil

Answer:Direct current (DC) cardioversion

Explanation:

In the context of a tachyarrhythmia, a systolic BP < 90 mmHg → DC cardioversion

Important for meLess important

This woman has a narrow-complex tachycardia with adverse signs - despite the fact that she is currently alert, she is in shock with a blood pressure of 80/50 mmHg which is highly dangerous. She needs urgent DC cardioversion which involves getting the resuscitation trolley, an anaesthetist, a medical registrar and nursing colleagues on hand as soon as possible if they are not already present. She will first need some midazolam to sedate her, so this can be drawn up, and pads can be placed on her chest while expert help is awaited. A large-bore cannula in a large vein will need to be sited - preferably she needs access in both arms. You can take blood at the same time, including for potassium, magnesium and calcium.

Vagal manoeuvres would be the appropriate first step in managing a narrow-complex tachycardia if she were not showing adverse signs. Due to her shock, this is incorrect for the scenario.

Adenosine would be given if vagal manoeuvres had failed in a non-asthmatic patient. This woman is asthmatic and is showing adverse clinical signs so adenosine is inappropriate.

Verapamil would be the correct drug in this patient if vagal manoeuvres had failed and she was not showing adverse signs. Due to her shock, this is an incorrect answer.

Amiodarone is not an appropriate first-line option here. DC cardioversion should be trialled immediately. If this does not restore her to sinus rhythm and she has no electrolyte imbalances, amiodarone can be given.

Question:

A 53-year-old woman presents with urgency and frequency. Two weeks ago she consulted with a colleague as she felt 'dry' during intercourse. She has been treated for urinary tract infections on multiple occasions in the past but urine culture is always negative. Her only medication is continuous hormone replacement therapy. A vaginal examination is performed which shows no evidence of vaginal atrophy and no masses are felt. An ultrasound is requested:

Both kidneys, spleen and liver are normal size. Outline of the bladder normal. 5 cm complex ovarian cyst noted on left ovary. Right ovary and uterus normal

What is the most appropriate next step?

A.Refer for urodynamics

B.Pelvic floor muscle training

C.Trial topical oestrogen

D.Urgent referral to gynaecology

E.Refer for bladder retraining

Answer:Urgent referral to gynaecology

Explanation:

Any ovarian mass in a post-menopausal woman needs to be investigated.

Question:

A 58-year-old man who is taking lithium for bipolar disorder presents for review. During routine examination he found to be hypertensive with a blood pressure of 166/82 mmHg. This is confirmed with two separate readings. Urine dipstick is negative and renal function is normal. What is the most appropriate medication to start?

A.Amlodipine

B.Ramipril

C.Losartan

D.Bendroflumethiazide

E.Doxazosin

Answer:Amlodipine

Explanation:

Diuretics, ACE-inhibitors and angiotensin II receptor antagonists may cause lithium toxicity. The BNF advises that neurotoxicity may be increased when lithium is given with diltiazem or verapamil but there is no significant interaction with amlodipine. Alpha-blockers are not listed as interacting with lithium but they would not be first-line treatment for hypertension.

The NICE hypertension guidelines suggest amlodipine wouldn't be a bad first choice, even if we ignore his lithium treatment.

Question:

Which one of the following is not a notifiable disease in the United Kingdom?

A.Tuberculosis

B.HIV

C.Measles

D.Whooping cough

E.Meningococcal septicaemia

Answer:HIV

Explanation:

HIV is not a notifiable disease

Important for meLess important

Question:

Jane is a 40-year-old woman who presents with weakness and numbness of her hand. The symptoms get worse when she raises her hands above her head. The numbness is generalised and not confined to any particular dermatome. She is also complaining of a painful neck and generalised headache. She is a keen tennis player and is upset as she cannot even grip her racket properly. She also describes her fingers turning white in the cold. On examination there is wasting in her thenar eminence. No other focal neurology is found.

Which of the following is the most likely cause of her symptoms?

A.Thoracic outlet syndrome

B.Carpal tunnel syndrome

C.Raynaud's phenomenon

D.Cervical spondylosis

E.Peripheral neuropathy

Answer:Thoracic outlet syndrome

Explanation:

Neurogenic thoracic outlet syndrome typically presents with muscle wasting of the hands, numbness and tingling and possibly autonomic symptoms

Important for meLess important

Narrowing of the thoracic outlet can cause both arterial and neurological symptoms. In some cases, symptoms can be worsened by raising the arm above the head. Symptoms will depend on the cause and whether primarily neurogenic or vascular.

Carpal tunnel syndrome is due to compression of the median nerve at the wrist. It causes numbness and tingling in the hand, but should not cause neck pain or headache.

Raynaud's phenomenon is a condition which causes a change in the colour of you fingers/ toes in cold weather. It can be primary or secondary.

Peripheral neuropathy causes numbness/ tingling and loss of sensation in a glove like distribution.

Cervical spondylosis occurs due to degeneration of the cervical spine. It can cause neck pain and sometimes leads to shooting pains down the arm. The symptoms do not necessarily worsen on raising arms above the head and it is more common as you get older. You do not get vascular symptoms with cervical spondylosis.

Question:

A 28-year-old woman presents to her GP with intermenstrual bleeding and dyspareunia. She does not use any hormonal contraceptives. After ruling out a sexually transmitted infection and fibroids, she is referred to colposcopy where she is diagnosed with a grade 1A squamous cell carcinoma of the cervix. She is married and hopes to have children in future.

Which treatment option is most appropriate for this woman’s cancer?

A.Cisplatin chemotherapy

B.Cone biopsy

C.Laser ablation

D.Radical trachelectomy

E.Short course of radiotherapy

Answer:Cone biopsy

Explanation:

Women with stage IA cervical cancer may be considered for a cone biopsy with negative margins if they wish to maintain their fertility

Important for meLess important

Cone biopsy is correct as this women wishes to preserve her fertility, in order to have children in future. In woman who do not want children, a hysterectomy with lymph node clearance is recommended.

Cisplatin chemotherapy and radiotherapy are incorrect, as they are only used for later stage cervical cancers.

Laser ablation is incorrect, since it is only used for cervical intraepithelial dysplasias.

Radical trachelectomy is incorrect, as it can lead to impairment of fertility.

Question:

A 68-year-old man presents to his GP with a 3-month history of needing to pass urine more often than usual, especially at night. On further questioning, he describes dribbling when passing urine and feeling like his bladder is not fully empty. He denies weight loss.

On examination, his abdomen is soft and not tender. He has a unilateral enlarged lateral lobe of the prostate which appears smooth on digital rectal examination.

What is the most appropriate first-line management?

A.Await biopsy before commencing treatment

B.Finasteride

C.Oxybutynin

D.Tamsulosin

E.Transurethral resection of the prostate

Answer:Tamsulosin

Explanation:

Alpha-1 antagonists are first-line in benign prostatic hyperplasia if the patient has troublesome symptoms

Important for meLess important

Tamsulosin is the first-line treatment for benign prostatic hyperplasia (BPH) in patients who have problematic symptoms, in particular voiding symptoms such as weak stream, hesitancy, straining, incomplete emptying and terminal dribbling. While tamsulosin can cause ejaculatory dysfunction, the benefit for the patient's symptoms outweighs the cost.

Await biopsy before commencing treatment is incorrect, as the patient's symptoms (lack of weight loss) and examination findings (smooth enlargement of the prostate) are suggestive of BPH, not prostate cancer. Therefore, he would not need a biopsy.

Finasteride is used in patients with BPH who are considered at high risk of disease worsening or in whom tamsulosin has failed.

Oxybutynin is used for urge incontinence which this patient does not have.

Transurethral resection of the prostate is a surgical procedure and is therefore only to be considered when medication fails or is inappropriate. As this patient is yet to try pharmaceutical intervention it is not indicated in this case.

Question:

A 64-year-old male presents for his annual diabetic review. He reports that in last few months he has developed tingling and numbness in his right ring finger and little finger. On examination there is paraesthesia and numbness of the right fourth and fifth digit, a right sided foot drop and a left sided facial weakness.

What is the most likely diagnosis?

A.Mononeuritis multiplex

B.Polyneuropathy

C.Right sided lacunar stroke

D.Right sided partial anterior circulation stroke

E.Brainstem stroke

Answer:Mononeuritis multiplex

Explanation:

Mononeuritis multiplex is simultaneous or sequential involvement of individual non-contiguous nerve trunks. It typically presents with acute or subacute loss of sensory and motor function of individual nerves. The pattern of involvement is asymmetric, however, as the disease progresses, deficit(s) becomes more confluent and symmetrical, making it difficult to differentiate from polyneuropathy.

In this case, the patient has loss of sensory and motor function of multiple non-contiguous nerves, making mononeuritis multiplex the most likely diagnosis.

Question:

A 71-year-old woman is admitted to the Acute Medical Unit with a two-week history of worsening right upper quadrant pain and fever.

Bloods show the following:

Bilirubin 58 µmol/l

ALP 301 u/l

ALT 168 u/l

γGT 252u/l

Albumin 33g/l

CRP 214 mg/l

A CT scan is arranged:

© Image used on license from Radiopaedia

What is the most appropriate intervention?

A.Intravenous antibiotics + image-guided percutaneous drainage

B.Intravenous antibiotics

C.Mebendazole + image-guided percutaneous drainage

D.Image-guided percutaneous drainage

E.Surgical resection

Answer:Intravenous antibiotics + image-guided percutaneous drainage

Explanation:

Liver abscesses are generally managed with a combination of antibiotics & drainage

Important for meLess important

Surgical resection would only be appropriate if intravenous antibiotics + image-guided percutaneous drainage failed to resolve the infection. If a hydatid cyst is suspected surgical resection is the first-line treatment. The appearance on the CT is however not consistent with this, as they tend to be much better circumscribed.

Question:

A 70-year-old woman presents with seizures. She has a past medical history of dementia and severe asthma for which she uses salbutamol, ipratropium and oral theophylline. Her daughter reports seeing her mother popping a lot of pills this morning.

Given her history of asthma and possible substance toxicity, an arterial blood gas (ABG) was performed.

pH 7.21 (7.35-7.45)

pCO2 3.3kPa (4.5-6.0)

pO2 7.8 kPa (10.0 - 14.0)

HCO3- 18mmol/L (22-26)

What is the definitive management to treat the possible toxicity?

A.Activated charcoal

B.Haemodialysis

C.Naloxone

D.Glucagon

E.Flumazenil

Answer:Haemodialysis

Explanation:

Haemodialysis is the definitive management for theophylline toxicity

Important for meLess important

The seizures and metabolic acidosis suggest that the pills may have been theophylline. Theophylline can also cause respiratory failure and eventually, respiratory arrest (hence the low pO2). Blood theophylline levels can be ordered to confirm the diagnosis. Haemodialysis is the mainstay of treatment.

Although activated charcoal should be used in all patients regardless of time of presentation, it is not the definitive management.

Naloxone is used in opiate toxicity.

Flumazenil is used in selected cases of benzodiazepine toxicity.

Glucagon is used to treat insulin-induced hypoglycaemia and to treat cardiogenic shock unresponsive to atropine in beta-blocker toxicity (unlicensed).

Question:

An 81-year-old female presents to the emergency department with severe right-sided hip pain after being involved in a road traffic collision. She is given analgesia which helps to reduce the pain. Her past medical history includes polymyalgia rheumatica and COPD. Her current medications are prednisolone, alendronic acid, colecalciferol and a salbutamol inhaler.

On examination, she is in visible pain and is unable to weight-bear on her right leg. At rest, her right leg appears to be shortened and externally rotated compared to the left side.

What is the most likely diagnosis?

A.Slipped capital femoral epiphysis

B.Hip fracture

C.Femoral shaft fracture

D.Hip dislocation

E.Hip osteoarthritis

Answer:Hip fracture

Explanation:

Leg is shortened and EXTERNALLY ROTATED with hip fracture

Important for meLess important

The patient has several major risk factors for a hip fracture: elderly female, long-term steroid use and a traumatic injury. The shortened, externally rotated leg is a common finding in hip fracture, and her inability to weight bear supports this diagnosis.

A - this condition typically occurs in obese teenagers, and would not present in adult patients.

B - correct answer.

C - these fractures can occur in high-energy traumatic injuries, however, these are less common than hip fractures, and would present with a visibly deformed thigh.

D - this injury can occur in high-energy traumatic injuries, but would result in a shortened, internally rotated leg.

E - there is no evidence of prior hip pathology from the patient's history, and the acute onset of symptoms does not support this diagnosis.

Question:

A 27-year-old woman has been referred to Early Pregnancy Unit, with pregnancy of unknown gestation and with some per vaginal bleeding.

She denies pain and is haemodynamically stable. This is her first pregnancy.

Ultrasound demonstrates a tubal pregnancy, with a visible foetal heartbeat and an unruptured adnexal mass of 40mm. beta-hCG is 5,200 IU/L.

What management would be first-line for this patient?

A.Surgical - open salpingectomy

B.Expectant

C.Medical

D.Reassure and do nothing

E.Surgical - laparoscopic salpingectomy

Answer:Surgical - laparoscopic salpingectomy

Explanation:

All ectopic pregnancies >35 mm in size or with a serum B-hCG >5,000IU/L should be managed surgically

Important for meLess important

The correct answer is:

Surgical - laparoscopic salpingectomy. Surgical management is indicated if an ectopic pregnancy is confirmed on ultrasound with an adnexal mass of 35mm or larger. In this case, the adnexal mass is 40mm. The beta-hCG is also >5,000 IU/L here. In most cases, surgery is done via laparoscopy.

The incorrect answers are:

Surgical - open salpingectomy. Laparotomy is reserved for emergency cases where there is rupture of the Fallopian tube and with haemodynamic instability. Here the patient is haemodynamically stable without rupture, so laparotomy is not required at present.

Medical. The adnexal mass is >35mm and BHCG >1500 so medical management would be inappropriate here.

Expectant. The adnexal mass is >35mm and BHCG is >1500 so medical management would be inappropriate here.

Reassure and do nothing. This is inappropriate as this patient’s ectopic pregnancy requires treatment.

Question:

A 55-year-old man with end-stage renal failure is due to have a renal transplant. He has read that having a renal transplant will increase his risk of cancer and would like to know more about this.

The risk of which one of the following cancers is he most at risk of following renal transplantation?

A.Pancreatic cancer

B.Myeloma

C.Squamous cell carcinoma of the skin

D.Oesophageal cancer

E.Gastric cancer

Answer:Squamous cell carcinoma of the skin

Explanation:

Research shows that 25% of patients who live for 20 years after a transplant develop some type of cancer. This occurs due to the immunosuppressive effects of the medication given to prevent transplant rejection.

The risk of all skin cancers increases following kidney transplantation, evidence has shown that in particular the risk of squamous cell carcinoma is increased. The risks of lymphoma and cervical cancer are also increased.

http://www.kidney.org.uk/organ-donation/medical-info-transplant-txcancer/

Question:

A 57-year-old woman with a history of polymyalgia rheumatica has been taking prednisolone 10 mg for the past 5 months. A DEXA scan is reported as follows:

L2 T-score -1.6 SD

Femoral neck T-score -1.7 SD

What is the most suitable management?

A.No treatment

B.Vitamin D + calcium supplementation + repeat DEXA scan in 6 months

C.Vitamin D + calcium supplementation

D.Vitamin D + calcium supplementation + hormone replacement therapy

E.Vitamin D + calcium supplementation + oral bisphosphonate

Answer:Vitamin D + calcium supplementation + oral bisphosphonate

Explanation:

Whilst DEXA scans were commonly used in this scenario in the past, more recent guidelines advocate giving patients on long-term corticosteroids prophylaxis without seeking a DEXA scan. NICE Clinical Knowledge Summaries advocate the following:

If bone-sparing treatment is recommended, prescribe a bisphosphonate (alendronate 10 mg once daily or 70 mg once weekly, or risedronate 5 mg once daily or 35 mg once weekly), if there are no contraindications and after appropriate counselling to:

...

Consider prescribing to:

People who are taking high doses of oral corticosteroids (more than or equivalent to prednisolone 7.5 mg daily for 3 months or longer).

...

Question:

A 7-year-old boy is brought to his GP by his mother. He has been struggling with a persistent cough and wheezing that is worse at night and after PE lessons in school. He has a history of eczema but is otherwise well in himself.

On examination, there are no signs of infection and there is an obstructive picture on spirometry.

What diagnostic investigation would be used and what result fits this boy's most likely diagnosis?

A.Bronchodilator reversibility testing, improvement of 14%

B.Bronchodilator reversibility testing, improvement of 8%

C.Fractional exhaled nitric oxide (FeNO) test, 27 parts per billion

D.Fractional exhaled nitric oxide (FeNO) test, 42 parts per billion

E.Spirometry is adequate for diagnosis, FEV1/FVC ratio 62%

Answer:Bronchodilator reversibility testing, improvement of 14%

Explanation:

An increase in the FEV1 of 12% or more after inhalation of a short-acting bronchodilator is indicative of asthma

Important for meLess important

This case fits with a diagnosis of asthma. He has a cough and wheezing symptoms that show diurnal variation and are worse with exercise. He also has eczema, therefore has a history of atopy. Together with obstructive spirometry, these all point towards asthma.

NICE suggests that in children aged 5-16, bronchodilator reversibility (BDR) testing should be offered to those with obstructive spirometry. An improvement of 12% or more is considered positive. Unlike in adults, FeNO testing is only offered to children if there is uncertainty over their assessment e.g. normal spirometry or obstructive spirometry but negative bronchodilator reversibility testing. With adults, NICE guidelines suggest offering both BDR and FeNO testing.

Bronchodilator reversibility testing measures the FEV1 before and after the administration of a bronchodilator (usually salbutamol). Improvement demonstrates that there is reversible airway obstruction, which is a hallmark of asthma. In FeNO (fraction of exhaled nitrous oxide) testing, the equipment measures the amount of nitrous oxide in exhaled breath. Nitrous oxide is a marker of airway inflammation and therefore is raised in individuals with asthma.

Bronchodilator reversibility testing, improvement of 14% is correct as

BDR test is the diagnostic test of choice and a result >12% fits with a diagnosis of asthma.

Bronchodilator reversibility testing, improvement of 8% is incorrect as a BDR improvement of <12% doesn't fit with a diagnosis of asthma.

Fractional exhaled nitric oxide (FeNO) test, 27 parts per billion is incorrect, as FeNO is only used in children when there is diagnostic uncertainty and <35 parts per billion would be considered negative in children.

Fractional exhaled nitric oxide (FeNO) test, 42 parts per billion is incorrect as although >/=35 parts per billion would be expected in asthma, the FeNO test is not the main diagnostic test in children.

Spirometry is adequate for diagnosis, FEV1/FVC ratio 62% is incorrect, as although an FEV1/FVC ratio of <70% is consistent with asthma, this picture on spirometry would warrant further investigation and is not diagnostic.

Question:

A 55-year-old man presents to his general practitioner with reports of recurrent episodes of the room spinning. He has no past medical history. He denies hearing loss or aural fullness. The patient experiences this commonly when he is in bed and each episode lasts 10-20 seconds. This has been ongoing for months and was preceded by an upper respiratory tract infection. He is well in between episodes.

The examination is unremarkable.

What is the likely diagnosis?

A.Benign paroxysmal positional vertigo

B.Meniere's disease

C.Multiple sclerosis

D.Posterior circulation stroke

E.Viral labyrinthitis

Answer:Benign paroxysmal positional vertigo

Explanation:

Typical BPPV history:

vertigo triggered by change in head position (e.g. rolling over in bed or gazing upwards)

may be associated with nausea

each episode typically lasts 10-20 seconds

Important for meLess important

Benign paroxysmal positional vertigo is correct. The patient gives a clear history short lasting stereotyped episodes of vertigo. Given this is commonly occurring when he is in bed it suggests that rolling over in bed is contributory, which would be typical of this diagnosis (brought about by changes in head position).

Meniere's disease is incorrect. This can cause recurrent episodes of vertigo. However, it will be unrelated to head position, episodes typically last 2-3 hours and there may be other associated features like hearing loss and a sensation of aural fullness.

Multiple sclerosis is incorrect. Vertigo is uncommon in MS. If it occurs, it is unlikely to be short-lasting. Additionally, there would typically be other associated features e.g. clinical signs of an upper motor neuron disorder or optic neuritis. It would be unrelated to the position a patient takes.

Posterior circulation stroke is incorrect. If the patient had a stroke it would be a sudden onset of persistent vertigo rather than recurrent episodes with periods of being well in between. The examination may be abnormal.

Viral labyrinthitis is incorrect. This can cause vertigo. However, it would typically cause vertigo after an infection that would result in one continuous episode that subsequently resolves rather than recurrent episodes. In this case, the infection that preceded the symptoms is unrelated. Furthermore, viral labyrinthitis causes hearing loss (unlike vestibular neuritis), which is absent here and makes the diagnosis unlikely.

Question:

A 74-year-old man is being managed palliatively in his last days of life for lung cancer. He has been taking 30 mg of oral modified release morphine sulfate twice a day. He has also required six doses of 5 mg oral immediate-release morphine sulfate for breakthrough pain.

The decision is made to start him on a syringe driver due to poor swallow.

What dose of morphine should be given in the syringe diver over 24-hours?

A.30 mg

B.35 mg

C.45 mg

D.60 mg

E.90 mg

Answer:45 mg

Explanation:

Divide by two for oral to subcutaneous morphine conversion

Important for meLess important

This patient's total daily dose of morphine is 90 mg, a twice-daily dose of 30 mg slow-release morphine sulfate, with 30 mg of immediate-release morphine sulfate for breakthrough pain. In order to convert this oral dose into a subcutaneous dose for a syringe driver, it is divided by two.

30 x 2 + 5 x 6 = 90

90/2 = 45

45 mg is the correct answer.

Question:

Which of the following statements is true regarding X-linked recessive inheritance?

A.A female child of a heterozygous female carrier has a 50% chance of being a carrier

B.An example is Friedreich's ataxia

C.50% of the male offspring of affected males will manifest the disease

D.An affected child's uncle on the paternal side will also manifest the disease

E.50% of the female offspring of affected males will be carriers

Answer:A female child of a heterozygous female carrier has a 50% chance of being a carrier

Explanation:

Question:

Which of the following combination of symptoms is most consistent with digoxin toxicity?

A.Nausea + tinnitus

B.Gynaecomastia + blue vision

C.Headache + diarrhoea

D.Nausea + yellow / green vision

E.Diarrhoea + tinnitus

Answer:Nausea + yellow / green vision

Explanation:

Digoxin may cause yellow-green vision

Important for meLess important

Gynaecomastia may occur with prolonged digoxin use but is not a sign of toxicity in itself. Diarrhoea is less common than nausea / vomiting in digoxin toxicity.

Question:

A 54-year-old lady on the colorectal surgery ward has recently undergone an elective resection for colorectal cancer. Her haemoglobin has fallen to 57g/L and you decide she requires a blood transfusion. Within minutes of starting the transfusion, you notice a widespread red bumpy rash, wheezing, stridor and swelling of her lips and eyes. Her blood pressure has fallen from 120/80mmHg to 90/60mmHg and her temperature is 37ºC. Which one of the following management options is most appropriate for this patient?

A.Permanent transfusion termination, intravenous adrenaline and high dose immune globulin therapy

B.Permanent transfusion termination, intravenous adrenaline, antihistamines, corticosteroids and supportive care

C.Temporary transfusion termination and an antihistamine

D.Permanent transfusion termination, intramuscular adrenaline, antihistamines, corticosteroids, bronchodilators and supportive care

E.Permanent transfusion termination, generous fluid resuscitation with saline solution and inform the lab

Answer:Permanent transfusion termination, intramuscular adrenaline, antihistamines, corticosteroids, bronchodilators and supportive care

Explanation:

Anaphylactic reaction to blood transfusion should be immediately treated with IM adrenaline and the transfusion terminated.

Important for meLess important

This patient is suffering from anaphylaxis following blood transfusion, hence the transfusion should be permanently stopped and IM adrenaline immediately administered. Antihistamines should be given to reduce the allergic symptoms, bronchodilators to alleviate bronchospasm and corticosteroids to mitigate protracted anaphylaxis. Supportive care will also be required as in any case of anaphylaxis.

Adrenaline should be given IM rather than IV to treat anaphylaxis and this patient would benefit from bronchodilators

Temporary termination of the transfusion with an antihistamine is the treatment for urticaria alone and would be insufficient for treating anaphylaxis. It would be highly inappropriate to restart the transfusion after such a severe allergic reaction.

High dose immune globulin is used to treat post-transfusion purpura, which is a rare, delayed transfusion reaction

Generous fluid resuscitation and informing the lab is the management of acute haemolytic transfusion reaction and clearly will not be sufficient to treat anaphylaxis alone.

(BMJ Best Practice)

Question:

Which option is not recommended during the management of compartment syndrome?

A.Anticoagulation

B.Keep limb level with the body

C.Intravenous fluids

D.Pain control

E.Fasciotomy

Answer:Anticoagulation

Explanation:

Anticoagulation will worsen compartment syndrome.

Question:

A 80-year-old man attends his GP complaining of persistent mid-back pain for the past 6 months. This is described as 7/10 in severity and has recently been preventing him from sleeping at night. Past medical history is unremarkable aside from stable angina and hypertension. On examination there is bony tenderness particularly in the thoracic spine and restricted range of movement. Blood tests reveal a raised corrected calcium level as well as a leucopenia. Which one of the following is the most appropriate action?

A.Measure serum PTH levels

B.Urgent protein electrophoresis and Bence Jones protein testing

C.Refer to physiotherapy

D.Refer for an urgent MRI of the spine

E.Prescribe an appropriate analgesia regime

Answer:Urgent protein electrophoresis and Bence Jones protein testing

Explanation:

NICE published guidance in 2015 on the recognition of and referral for suspected cancer in children, young people and adults.

Clinicians should offer very urgent protein electrophoresis and a Bence Jones protein urine test (within 48 hours) to assess for myeloma in people aged 60 and over with hypercalcaemia or leukopenia and a presentation that is consistent with possible myeloma.

Measuring serum PTH levels would be helpful in delineating the cause of the raised calcium levels e.g. for the presence of primary hyperparathyroidism. However, the other symptoms co-existing with high calcium should prompt more divisive action. Physiotherapy is undoubtedly helpful for mechanical back pain but the red flag features of this presentation require further investigation. Imaging may be warranted in some cases of back pain but is not the first choice for investigating potential myeloma. Similarly, while analgesia would be an important part of this patient's management, by itself it is not appropriate.

Question:

A 24-year-old female presents complaining of a painful lower lip. She has recently been on holiday to Mexico

What is the most likely causative organism?

A.Coxsackie A virus

B.Leishmania donovani

C.Herpes simplex virus type 1

D.Staphylococcus aureus

E.Herpes simplex virus type 2

Answer:Herpes simplex virus type 1

Explanation:

Sunlight is a common trigger for cold sores

Question:

A 62-year-old woman is admitted to hospital with two days of loin pain, fever, nausea and rigors. She describes having had a recent urinary tract infection, with associated dysuria and haematuria. She has a past medical history of asthma and epilepsy.

On examination, she has right-sided flank pain with some tenderness. Observations show mild hypotension and a raised temperature. Blood tests support an infective picture. A decision is made to commence the patient on an antibiotic.

The next day, the patient has a seizure, witnessed by the nurses. The doctors believe that her new antibiotic may have precipitated the seizure.

Which of the following antibiotics was she commenced on?

A.Cefalexin

B.Ciprofloxacin

C.Co-amoxiclav

D.Flucloxacillin

E.Metronidazole

Answer:Ciprofloxacin

Explanation:

Ciprofloxacin lowers the seizure threshold

Important for meLess important

The diagnosis in the scenario is that of acute pyelonephritis, for which ciprofloxacin, a quinolone-class antibiotic, is a commonly-used medication. Of the above options, ciprofloxacin is the only medication known to lower the seizure threshold in epileptic patients and so this is the correct answer.

Cefalexin is incorrect. This is a cephalosporin-class antibiotic and would have been a suitable alternative to ciprofloxacin. However, it is not known to lower the seizure threshold and so would not fit with the scenario above.

Co-amoxiclav is incorrect. This is another antibiotic that may be used in the treatment of pyelonephritis. Again, however, it is not known to lower the seizure threshold.

Flucloxacillin is not routinely used in the management of pyelonephritis. It is not known to affect the seizure threshold.

Metronidazole is also not routinely used in the management of pyelonephritis, nor is it known to affect the seizure threshold.

Question:

A 71-year-old woman comes for review. She was diagnosed with angina pectoris recently and is currently taking aspirin 75mg od, simvastatin 40mg on and atenolol 100mg od. If her anginal symptoms are not controlled on this medication, what is the most appropriate next step?

A.Add an ACE inhibitor

B.Add nicorandil

C.Add isosorbide mononitrate MR

D.Refer for revascularisation

E.Add a long-acting dihydropyridine calcium-channel blocker

Answer:Add a long-acting dihydropyridine calcium-channel blocker

Explanation:

If angina is not controlled with a beta-blocker, a longer-acting dihydropyridine calcium channel blocker should be added

Important for meLess important

Question:

You are doing the six-week baby check on a healthy infant who was born at term. You are doing some health promotion and discussing how to reduce the risk of 'cot death'. The mother does not smoke and is aware of the importance of the baby sleeping on its' back. What is the most significant additional risk factor for sudden infant death syndrome (SIDS)?

A.Sleeping in the same bed as the baby

B.Using a dummy (pacifier)

C.The room being too cold

D.Not waking the baby for feeds during the night

E.Bottle feeding

Answer:Sleeping in the same bed as the baby

Explanation:

The major risk factors for SIDS are:

prone sleeping

parental smoking

bed sharing

hyperthermia and head covering

prematurity

Important for meLess important

Of the options listed above, studies have shown that co-sleeping is by far the most significant risk factor for SIDS.

Question:

A 25-year-old man is counselled regarding the genetics of Huntington's disease. Which one of the following best describes the concept of anticipation?

A.The psychological effect of a patient knowing they will develop an incurable condition

B.Earlier age of onset in successive generations

C.Less severe disease in successive generations

D.Where there is a known history of inherited conditions, patients may attribute symptoms to the onset of the disease

E.Screening at risk families to allow early intervention and improve outcomes

Answer:Earlier age of onset in successive generations

Explanation:

Anticipation in trinucleotide repeat disorders = earlier onset in successive generations

Important for meLess important

In most cases, an increase in the severity of symptoms is also noted

Question:

A 37-year-old man presents to the emergency department with severe loin pain. The pain occurs in spasms and radiates to his groin. The patient cannot keep still as the pain is very severe. He has also vomited numerous times since being in the emergency department. He is non-febrile and is still passing urine. A urine dipstick is performed which reveals haematuria but no leucocytes or nitrites.

What initial treatment should be given to the patient?

A.Extracorporeal shockwave lithotripsy

B.IM diclofenac

C.Oral nifedipine

D.Oral paracetamol

E.Oral tamsulosin

Answer:IM diclofenac

Explanation:

Guidelines continue to recommend the use of IM diclofenac in the acute management of renal colic

Important for meLess important

This presentation is classic for renal colic. As this patient is in severe pain, administration of analgesia should be given initially. IM diclofenac is the recommended analgesia in acute renal colic so this is the correct answer.

NICE guidelines recommend IV paracetamol as analgesia if NSAIDs are contraindicated or ineffective. However oral paracetamol is not recommended for analgesia in renal colic and so this is incorrect.

Nifedipine and tamsulosin are medical expulsive therapies that can be used for stones <10mm or if pain is not resolving. However this would not be the initial treatment and so is incorrect.

Extracorporeal shockwave lithotripsy is also not initial treatment for renal colic. It is reserved for stones <1cm that have not passed within 48 hours or where pain is ongoing and not tolerated.

Question:

A 39-year-old overweight female undergoes an elective laparoscopic cholecystectomy for gallstone disease. Day 1 post-operatively you are asked to review her by the nurse in charge. The patient is complaining of severe right upper quadrant pain. On examination she is tachycardic, but normotensive and apyrexial. Her right upper quadrant is tender to palpation but there is no evidence of jaundice. The intra-abdominal drain in-situ has a small volume of green liquid draining from it.

What post-operative complication is most likely?

A.Intra-abdominal collection

B.Biliary leak

C.Intra-abdominal haemorrhage

D.Perforated viscus

E.Ileus

Answer:Biliary leak

Explanation:

Right upper quadrant tenderness and bilious fluid in the intra-abdominal drain would suggest a bile leak following the cholecystectomy. As the patient is apyrexial and normotensive an intra-abdominal collection or haemorrhage would be unlikely. A perforation is a recognised complication of a laparoscopic cholecystectomy however the patient would normally develop peritonitis, as oppose to localised right upper quadrant tenderness. Finally, an ileus would not causes right upper quadrant pain or bilious fluid in the drain.

Reference: http://www.uptodate.com/contents/complications-of-laparoscopic-cholecystectomy

Question:

A 40-year-old man presents to his GP with a 3-day history of watery diarrhoea with crampy abdominal pain. Approximately 8 weeks ago, he was diagnosed with a C. difficile infection after taking antibiotics for community-acquired pneumonia. He was appropriately treated with vancomycin and his diarrhoea resolved. The patient has not travelled anywhere or changed his routine/diet. Investigations were undertaken which show the following:

C. difficile toxin positive

What is the most appropriate management option?

A.Prescribe oral fidaxomicin

B.Prescribe oral metronidazole

C.Prescribe oral vancomycin

D.Prescribe oral vancomycin with intravenous metronidazole

E.Prescribe oral vancomycin with oral metronidazole

Answer:Prescribe oral fidaxomicin

Explanation:

A recurrent episode of C. difficile within 12 weeks of symptom resolution should be treated with oral fidaxomicin

Important for meLess important

Prescribe oral fidaxomicin is correct as the patient presents with a recurrent episode of C.difficile within 12 weeks of symptoms resolution. Vancomycin has already been prescribed in his first presentation so the organism may be resistant and thus requires fidaxomicin.

Prescribe oral metronidazole is incorrect. Metronidazole is an alternative but less effective agent that can be used in the first episode of non-severe C.difficile infection if oral vancomycin is not available or if it is contraindicated. It should not be used in this case as the patient is suffering from a recurrent episode.

Prescribe oral vancomycin is incorrect as vancomycin is recommended for the first-line antibiotic for the first episode of mild, moderate or severe C. difficile infection. This patient has already had a C. difficile infection 8 weeks ago and has already been prescribed vancomycin. He has now presented with a recurrence of symptoms within 12 weeks and thus requires fidaxomicin.

Prescribe oral vancomycin with intravenous metronidazole is incorrect. This regimen would only be used if there was a life-threatening C. difficile infection. This patient does not present with any features of a life-threatening C. difficile infection. Features of a life-threatening infection include hypotension, partial or complete ileus, toxic megacolon or CT evidence of severe disease.

Prescribe oral vancomycin with oral metronidazole is incorrect. Oral vancomycin is used for a first episode C. difficile infection whilst oral metronidazole is used in the same scenario as an alternative if vancomycin is not available or if it is contraindicated. This patient is suffering from a recurrent episode of C. difficile infection and thus does not require vancomycin or metronidazole, he should be prescribed oral fidaxomicin.

Question:

A 46-year-old man is reviewed in the surgical clinic after having a colonic tumour removed. Genetic testing has shown the man has hereditary non-polyposis colorectal cancer secondary to a mutation in the MSH2 gene. He asks if his daughter will be at risk of other cancers, not just colorectal cancer. Which one of the following is she most at risk from?

A.Endometrial cancer

B.Breast cancer

C.Cervical cancer

D.Liver cancer

E.Ovarian cancer

Answer:Endometrial cancer

Explanation:

Endometrial cancer is the second most common association of HNPCC after colorectal cancer

Important for meLess important

Question:

You are working in general practice and see a 17-year-old girl with a 8-day history of a lesion on her lower torso. This is a single 3cm oval plaque, pink in colour, with a scale trailing just inside the edge of the lesion. She has then had a subsequent 2-day history of generalised, non-pruritic, rash down her torso. This rash consists of lots of fine scales patches and plaques which follow the pattern of langer's lines. What is the most likely diagnosis?

A.Pityriasis rosea

B.Tinea corporis

C.Guttate psoriasis

D.Discoid (nummular) eczema

E.Pityriasis versicolor

Answer:Pityriasis rosea

Explanation:

Pityriasis can initially present with a herald patch

Important for meLess important

The key part of this history is the presence of a herald patch, this is specific to pityriasis rosea. Tine corporis lesions typically all present at the same time, they are itchy and don't have a history of a herald patch. Guttate psoriasis will often follow a streptococcal throat infection and result in drop-like salmon-pink papules, some may have a scaly surface.

Discoid eczema will often present in someone with a previous history of eczema, again there will be no history of a herald patch lesion and presents with itchy oval erythematous plaques. Pityriasis versicolor will often have an insidious onset with macular lesions and patches of altered pigmentation.

Question:

A 88-year-old man is admitted to hospital for treatment of pneumonia, sepsis, and delirium. He has a background of lung cancer, type 2 diabetes mellitus, and congestive cardiac failure. It is agreed among his doctors that he should not be for CPR. He does not have a welfare attorney or advance decision regarding CPR. His next of kin are his three children.

Which of the following is most correct?

A.All decisions about CPR must be discussed with the patient, regardless of whether or not he has capacity

B.Decisions about CPR are medical, and there is no requirement to discuss them with the patient or his next of kin

C.Any decision about CPR should be communicated to the patient and/or his next of kin

D.The doctors should obtain consent from the patient or his next of kin in order to fill in the DNACPR documentation

E.Decisions about CPR should be deferred until patients regain capacity and can be consulted

Answer:Any decision about CPR should be communicated to the patient and/or his next of kin

Explanation:

Any decision about CPR should be communicated clearly to all those involved in the patient’s care

Important for meLess important

In 2014, the Court of Appeal made the judgement that doctors have a legal duty to consult with and inform the patient if they want to place a Do Not Attempt Cardiopulmonary Resuscitation (DNACPR) order in the patient's notes. This should be extended, in cases where the patient lacks capacity, to communication and discussion of CPR decisions with relatives and friends of the patient - indeed, all those involved in the patient's care.

Decisions about CPR should not generally be deferred, especially in cases such as this one where the patient has a high chance of deteriorating, and where from a medical perspective CPR would not be appropriate. Decisions about CPR are medical, and CPR is not an intervention that patients or their next of kin can demand. Nonetheless, the important point here is that all CPR discussions should be communicated to patients and/or their family and friends in a sensitive and frank manner.

'Decisions relating to cardiopulmonary resuscitation', published jointly by the BMA, Resuscitation Council and RCN in 2016, provides further guidance.

Question:

A 52-year-old male is referred to urology clinic with impotence. He is known to have hypertension. He does not have any morning erections. On further questioning the patient reports pain in his buttocks, this worsens on mobilising. On examination there is some muscle atrophy. The penis and scrotum are normal. What is the most likely diagnosis?

A.Leriche syndrome

B.S3-S4 cord lesion

C.Pudendal nerve lesion

D.Psychological impotence

E.Beta blocker induced impotence

Answer:Leriche syndrome

Explanation:

Leriche syndrome

Classically, it is described in male patients as a triad of symptoms:

1. Claudication of the buttocks and thighs

2. Atrophy of the musculature of the legs

3. Impotence (due to paralysis of the L1 nerve)

Important for meLess important

Leriche syndrome, is atherosclerotic occlusive disease involving the abdominal aorta and/or both of the iliac arteries. Management involves correcting underlying risk factors such as hypercholesterolaemia and stopping smoking. Investigation is usually with angiography.

Question:

A 66-year-old man attends clinic for review of his diabetic control. He has a history of type 2 diabetes mellitus, and was commenced on metformin six months' ago. The patient's HbA1c today is 60mmol/mol. You discuss the patient with your consultant, who recommends addition of empagliflozin for glycaemic control.

What is the mechanism of action of this medication?

A.Biguanide

B.Sulfonylurea

C.GLP-1 mimetic

D.SGLT-2 inhibitor

E.DPP-4 inhibitor

Answer:SGLT-2 inhibitor

Explanation:

SGLT-2 inhibitors reversibly inhibit sodium-glucose co-transporter 2 (SGLT-2) in the renal proximal convoluted tubule

Important for meLess important

SGLT-2 inhibitors reversibly inhibit sodium-glucose co-transporter 2 (SGLT-2) in the renal proximal convoluted tubule. In doing so, they reduce glucose reabsorption and increase urinary glucose excretion. This mechanism explains their main side effects - increased urine output, weight loss and urinary infections. Examples include canagliflozin, dapagliflozin and empagliflozin.

SGLT-2 inhibitors are often the best option in patients with ischaemic heart disease and heart failure who have not achieved adequate glycaemic control on metformin alone.

Important adverse effects include:

Urinary and genital infection (secondary to glycosuria).

Normoglycaemic ketoacidosis

Increased risk of lower-limb amputation: feet should be closely monitored

Biguanides (such as metformin) act to decrease gluconeogenesis in the liver and increase insulin sensitivity.

Sulfonylureas (such as gliclazide) act to increase insulin release from beta-cells in the pancreas.

GLP-1 mimetics (such as exenatide) mimic incretin which is usually released in the gastrointestinal tract, and has the effect of increasing insulin production.

DPP-4 inhibitors (such as sitagliptin) act to block the action of DPP-4, an enzyme which breaks down incretin.

Question:

A 44-year-old man comes into his GP for a review of his hereditary haemochromatosis which is being managed with fortnightly venesection. The GP wants to monitor the effectiveness of his treatment.

Which investigations would be most helpful in assessing this?

A.Blood film with staining for iron

B.Ferritin and total iron-binding capacity

C.Ferritin and transferrin saturation

D.Full blood count

E.Serum iron concentration

Answer:Ferritin and transferrin saturation

Explanation:

Ferritin and transferrin saturation are used to monitor treatment in haemochromatosis

Important for meLess important

Ferritin and transferrin saturation are the most useful investigations for monitoring the adequacy of venesection. Transferrin saturation should be kept below 50% and the serum ferritin concentration below 50 ug/L. Please note that these figures are different from the haemochromatosis diagnostic values (transferrin saturation >55% in men and >50% in women, ferritin >500 ug/L). Ferritin is the primary intracellular iron-storage protein that directly correlates with the degree of iron overload in the blood. Transferrin saturation determines the proportion of transferrin (the primary iron transporter in the blood) that is occupied by iron. It therefore also correlates with the degree of iron overload and hence the effectiveness of venesection.

Serum iron concentration is an inaccurate method of assessing iron overload as the majority of iron will either be bound intracellularly to ferritin, bound extracellularly to transferrin, or deposited within tissues.

Total iron-binding capacity (TIBC) relates to the body's capacity to bind iron with proteins in the blood. Since transferrin is the primary iron transporter, TIBC is a useful way of indirectly measuring transferrin levels, although they are not synonymous. Transferrin saturation is a more sensitive marker of iron overload as transferrin concentrations (and thus TIBC) can vary due to a patient's liver function and nutritional status.

A full blood count would be of little use to assess the degree of iron overload within a patient as it would not include any relevant indicators such as ferritin, transferrin saturation, TIBC, or serum iron concentrations. It would however be useful if the patient started to develop symptoms of anaemia (eg pallor, palpitations, fatigue, dyspnoea) due to frequent venesections.

A blood film with iron staining would only confirm the presence of iron overload and would therefore be unhelpful in determining the degree of iron accumulation to assess the effectiveness of venesection.

Question:

Each of the following are true regarding tricyclic overdose, except:

A.Anticholinergic features are prominent early on

B.Metabolic acidosis is a common complication

C.ECG changes include prolongation of the QT interval

D.Dialysis is indicated in severe toxicity

E.QRS duration > 160ms is associated with ventricular arrhythmias

Answer:Dialysis is indicated in severe toxicity

Explanation:

Question:

A 55-year-old man is referred to the medical admissions unit. He recently returned from a holiday in Italy and has failed to respond to a course of co-amoxiclav for a suspected lower respiratory tract infection. Chest x-ray shows bilateral infiltrates. Bloods are as follows:

Na+ 122 mmol/l

K+ 4.3 mmol/l

Urea 8.4 mmol/l

Creatinine 130 µmol/l

What is the likely diagnosis?

A.Goodpasture's syndrome

B.Legionella pneumonia

C.Pneumocystis carinii pneumonia

D.Pulmonary eosinophilia

E.Mycoplasma pneumonia

Answer:Legionella pneumonia

Explanation:

Stereotypical features of Legionella include flu-like symptoms and a dry cough, relative bradycardia and confusion. Blood tests may show hyponatraemia

Important for meLess important

Question:

A 22-year-old pregnant lady of Sudanese origin attends the GP anxious about her impending vaginal delivery. She is currently 30 weeks pregnant and has type 3 female genital mutilation. She advises that she would prefer for her vagina to be reinfibulated (to be sewn back up to infibulated status) post-delivery as this is what she is used to. What would be the recommended management?

A.Advise her that reinfibulation can only be performed under exceptional circumstances and she will need to be further assessed

B.Advise her that this procedure is not funded by the NHS but can be performed privately

C.Assess her mental capacity before a decision can be made

D.Advise her that reinfibulation is illegal and cannot be done under any circumstances

E.Advise her that you will need to discuss this with the police as this is an illegal request

Answer:Advise her that reinfibulation is illegal and cannot be done under any circumstances

Explanation:

It is illegal to reinfibulate a woman with type 3 FGM after vaginal delivery

Important for meLess important

The female genital mutilation Act 2003 advises that all forms of female genital cutting/modification for non-medical reasons is illegal and cannot be performed under any circumstances. It is illegal to perform such procedures however not illegal to discuss it.

Further Reading:

https://www.legislation.gov.uk/ukpga/2003/31/contents

http://www.who.int/reproductivehealth/topics/fgm/fgmreinfibulationsudan/en/

Question:

A 19-year-old male presents with a 1-week history of a painful, swollen knee which is particularly stiff in the morning. He has had pain when urinating for 3 weeks, and this morning he has noticed his eyes are red and painful. Apart from well-controlled asthma, he has no medical conditions.

Reluctantly he tells you that he had unprotected sexual intercourse 4 weeks ago and he has not been tested for a sexually transmitted infection.

What is the most likely diagnosis?

A.Ankylosing spondylitis

B.Disseminated gonococcal disease

C.Gout

D.Reactive arthritis

E.Syphilis

Answer:Reactive arthritis

Explanation:

Urethritis + arthritis + conjunctivitis = reactive arthritis

Important for meLess important

The triad of urethritis, arthritis and conjunctivitis is characteristic for reactive arthritis. Furthermore, he has has unprotected sexual intercourse, which puts him at risk of Chlamydia trachomatis, the most common cause of reactive arthritis.

Ankylosing spondylitis typically causes back pain and can be associated with iritis/uveitis. It does not cause urethritis.

Disseminated gonococcal disease causes a triad of tenosynovitis, migratory polyarthritis and dermatitis.

Gout is uncommon in this age group but is an important differential to consider in patients presenting with swollen, painful joints.

Syphilis is not typically associated with arthritis or urethritis.

Question:

A 35-year-old woman admitted to the gastroenterology ward for management of a flare-up of her ulcerative colitis which has proven difficult to control. She has no past medical history. On the eleventh day of admission she is found to be trying to climb out of the window, telling staff that God is speaking to her and telling her to escape to pass on heavenly messages. Of the following, which medication is likely responsible for her symptoms?

A.Olanzapine

B.Mesalazine

C.Paracetamol

D.Anusol

E.Prednisolone

Answer:Prednisolone

Explanation:

A rare but recognised complication of corticosteroid therapy is steroid psychosis

Important for meLess important

Flare-ups of ulcerative colitis may be treated with high doses of corticosteroids. A rare but recognised complication of corticosteroid therapy is steroid psychosis. Steroid psychosis is unrelated to previous mental health history and can affect any age. Women are slightly more likely to be affected than men. Olanzapine is an antipsychotic. Mesalazine and paracetamol are unlikely to cause psychosis. Anusol is a brand of haemorrhoid creams and ointments.

Question:

You are doing a medication review on a 64-year-old man with a history of cerebrovascular disease (having had a stroke 3 years ago), depression and knee osteoarthritis. His medication list is as follows:

clopidogrel 75mg od

simvastatin 20mg on

amlodipine 5mg od

ramipril 10mg od

diclofenac 50mg prn

sertaline 50mg od

lansoprazole 15mg od

What is the most appropriate change to make to his medications?

A.Switch sertaline to citalopram

B.Switch diclofenac for an alternative NSAID

C.Add aspirin

D.Reduce the dose of simvastatin

E.Switch clopidogrel to aspirin

Answer:Switch diclofenac for an alternative NSAID

Explanation:

Diclofenac is now contraindicated with any form of cardiovascular disease

Important for meLess important

Question:

You are called to the treatment room of a GP surgery as a 12-month-old boy has developed a rash and breathing difficulties following a routine vaccination. On examination he is developing swelling around the mouth and neck. What is the most appropriate initial action?

A.Phone 999 and reassure mother

B.IM adrenaline 150 mcg (0.15ml of 1 in 1,000)

C.IM adrenaline 300 mcg (0.3ml of 1 in 1,000)

D.IM adrenaline 50 mcg (0.05ml of 1 in 1,000)

E.Salbutamol nebuliser stat

Answer:IM adrenaline 150 mcg (0.15ml of 1 in 1,000)

Explanation:

6 months - 6 years adrenaline dose for anaphylaxis 150 mcg (0.15ml 1 in 1,000)

Important for meLess important

Question:

A 70-year-old man presents to the emergency department after a witnessed generalised tonic-clonic seizure. His wife tells you that he is not known to have seizures and that over the past 3 days, he has become quiet and withdrawn. He had a viral upper respiratory tract infection 3 weeks ago.

On examination, the patient is withdrawn but alert. Tendon reflexes are brisk but there are no other neurological findings. There is no visible rash or neck stiffness. CT head reveals no obvious intracranial masses and no signs of herniation.

Given the likely diagnosis, what is the next most appropriate investigation?

A.Cerebrospinal fluid PCR

B.Cerebrospinal fluid culture and sensitivities

C.EEG

D.MRI head

E.Throat swab

Answer:Cerebrospinal fluid PCR

Explanation:

PCR of cerebrospinal fluid for viruses is a key investigation in patients with suspected encephalitis

Important for meLess important

Cerebrospinal fluid (CSF) PCR is correct. This patient is presenting with a history of new-onset generalised tonic-clonic seizures and mental state change (new onset somnolence). Furthermore, on examination, he has signs of focal neurological deficit in the form of brisk tendon reflexes. Combining this with the history of an upper respiratory tract infection and the age of the patient this is likely to be viral encephalitis. This diagnosis requires a combination of clinical signs and CSF PCR, therefore this is the most important investigation to request.

CSF culture and sensitivities is incorrect in this case. This patient is presenting with a clinical picture of viral encephalitis. The likely cause of this patient's illness is viral, so culture and sensitivities will not be appropriate in this case. The viral aetiology of these symptoms can be confirmed on regular lumbar puncture analysis. If lumbar puncture analysis presents a bacterial picture then a culture would be appropriate.

EEG is incorrect. This patient is presenting with a clinical picture of viral encephalitis. EEG can be used in the diagnosis of encephalitis, however, the changes seen on EEG are often nonspecific and so would not be useful in confirming a diagnosis of viral encephalitis.

MRI head would be incorrect here. This patient is presenting with a clinical picture of viral encephalitis. MRI can be used in the initial diagnostic workup instead of CT. However, due to limited availability and time needed for an MRI, CT is often used. If a CT scan has already been undertaken it is more practical to confirm the diagnosis with CSF PCR than to do an MRI. Furthermore, an MRI is normal in a third of encephalitis patients.

Throat swab is incorrect. This patient is presenting with a clinical picture of viral encephalitis. A throat swab could be used if this patient had had a more recent upper respiratory tract infection. This infection could be the cause of this patient's encephalitis, however as this infection was three weeks ago, a swab is unlikely to add anything in this case. Furthermore, a throat swab cannot definitively confirm a diagnosis of viral encephalitis and so in this situation, it is more appropriate to do a CSF PCR.

Question:

A 53-year-old lady comes in to the Emergency Department with a cough productive of green sputum and palpitations. She feels very unwell, feverish and lethargic. On examination she has bronchial breathing at her right base with respiratory rate 25/min, sats 95% on room air. Her heart sounds are normal with an irregularily irregular heartbeat. Her heart rate was 120/min and blood pressure 90/40 mmHg. An ECG shows atrial fibrillation with a fast ventricular rate. She has no history of atrial fibrillation. What is the first treatment that should be given?

A.Bisoprolol

B.Digoxin

C.Intravenous fluids

D.Oral antibiotics

E.Flecainide

Answer:Intravenous fluids

Explanation:

This patient is clearly septic from a pneumonia. This has tipped the patient into atrial fibrillation (AF) given there is no previous history of atrial fibrillation. It is important to treat the sepsis as the cause of the AF. To do this it is imperative to give IV fluids and IV antibiotics. If the patient's AF does not settle following the resolution of the sepsis then other options would be considered.

The patient is haemodynamically unstable and according to WHO surviving sepsis they require fluid resuscitation and broad-spectrum intravenous antibiotics. You would not give a beta-blocker to a hypotensive patient who is septic as this might lead to a further decompensation in their blood pressure.

Question:

A 23-year-old male is undergoing a medical review at a professional football club when an ejection systolic murmur is found. He is sent for echocardiogram and subsequently diagnosed with hypertrophic obstructive cardiomyopathy (HOCM).

Electrocardiogram (ECG) is normal and pulse is regular.

Which of the following complications of this condition is most likely to cause sudden death in this athlete?

A.Myocardial infarction

B.Ruptured mitral valve

C.Complete heart block

D.Ventricular arrhythmia

E.Wolff-Parkinson White syndrome

Answer:Ventricular arrhythmia

Explanation:

Hypertrophic obstructive cardiomyopathy - is associated with sudden death in young athletes due to ventricular arrhythmia

Important for meLess important

The proposed mechanism of sudden death is ventricular tachycardia secondary to ischaemia and this typically occurs in the setting of extreme exertion.

Myocardial infarction (MI) is most commonly associated with atherosclerosis within the coronary arteries. This would be unlikely in a young person. MI in young people may be associated with cocaine use.

Whilst HOCM may lead to a regurgitant mitral valve, rupture of this valve is not a recognised complication.

HOCM may lead to heart block. However, this is uncommon and would be unlikely to cause sudden death.

Wolff-Parkinson White syndrome is associated with HOCM and it can lead to sudden cardiac death but it is not a complication of the condition.

Question:

An 81-year-old woman is brought into the emergency department by her daughter following an unwitnessed collapse. The patient is confused so there is no obtainable history. Her past medical history includes depression, Alzheimer's dementia, and atrial fibrillation. Her regular medications include bisoprolol, donepezil, and amitriptyline. It was noted by the ambulance crew that she had taken an excess of her regular medications.

On examination, the chest is clear and saturations are 96% on room air. An ECG demonstrates a sinus rhythm with a rate of 34/min. The blood pressure is 94/59mmHg. Her Glasgow coma score is 13/15. She is afebrile and the blood sugar is 7.8mmol/L.

What is the most appropriate initial treatment?

A.Atropine

B.Ephedrine

C.Glucagon

D.IV bicarbonate

E.Metaraminol

Answer:Atropine

Explanation:

Beta-blocker - atropine, glucagon in resistant cases

Important for meLess important

This woman is suffering from a beta-blocker overdose for which the management aims to restore a normal heart rate. The first line in these cases is atropine which is, therefore, the correct answer here.

Ephedrine is both an alpha- and beta-adrenergic receptor agonist and therefore exerts a positively chronotropic effect on the heart as well as acting as a vasopressor. This is predominantly used in anaesthesia and requires invasive monitoring. Atropine is the preferred first-line agent in cases of beta-blocker overdose.

Glucagon can be used to manage beta-blocker overdose however is usually used as a second-line agent in cases that are resistant to atropine.

IV bicarbonate is an agent used for a tricyclic antidepressant (TCA) overdose, however, this is not the case here as TCA overdoses result in tachycardia rather than bradycardia.

Metaraminol is a selective alpha-adrenergic agonist and is used for vasopressor support. Unfortunately, this would have minimal impact in normalising this woman's heart rate and reversing the effects of the beta-blocker.

Question:

A 30-year-old woman is admitted to the Emergency Department following the acute onset of palpitations. Blood pressure is 124/84 mmHg and her pulse is 150/min. An ECG shows a narrow complex tachycardia. Intravenous access is gained and 6mg of adenosine is given with no effect. What is the most appropriate next step?

A.Intravenous adenosine 12 mg

B.Intravenous adenosine 6mg

C.Intravenous verapamil 2.5-5 mg

D.Radio-frequency ablation

E.Electrical cardioversion

Answer:Intravenous adenosine 12 mg

Explanation:

A further dose of adenosine should be given if there is no response to the initial injection. Please see the Resuscitation Council (UK) link for further details.

Question:

You are an F1 in the Emergency Department. You see a 24-year-old student with suspected meningitis. The registrar asks you to perform a lumbar puncture before she goes to the ward. This is not a procedure you have performed before, and you can recall only limited information about the procedure from medical school teaching. What should you do?

A.Explain to the registrar that this is outside of your competence and so you are not comfortable in performing the procedure

B.Explain to the registrar this is not a skill that should be expected of an F1 doctor

C.Ask an F1 colleague to perform the procedure whilst you observe and learn for future attempts

D.As the procedure has many potential risks, await the patient's blood test results before deciding if she really requires the procedure

E.Do not perform the procedure, but document clearly in the notes that it has been requested and will need to be performed on the ward

Answer:Explain to the registrar that this is outside of your competence and so you are not comfortable in performing the procedure

Explanation:

Being asked to complete a task you are not competent in may be a common situation as a junior doctor. The General Medical Council (GMC) explicitly state in 'Good Medical Practice' (2013) that as a doctor you must recognise and work within the limits of your competence, taking this into account in all clinical settings.

Performing a lumbar puncture incorrectly can result in significant risks to the patient, and so it is not a procedure that should be performed with a 'best-guess' approach. Option 2 is not strictly correct, as this skill depends more upon your skill level in this area, rather than your general level of training. Whilst asking to observe a procedure can help improve your knowledge, asking an F1 colleague who may not be confident themselves is irresponsible. Waiting for blood results is unlikely to be helpful, and delaying the procedure until the patient moves to the ward goes against the registrar's instructions and could put the patient at risk.

General Medical Council. Good Medical Practice. London: General Medical Council, 2013. p. 7, 11.

Question:

A 6-year-old is brought in by his mother who is concerned that he has been experiencing pain in his right hip for the past 6 weeks. She reports the pain has been progressively worsening and is waking him up at night. For the last week, she has noticed a slight limp and difficulty getting in or out of the car and the bath.

What is the most likely diagnosis?

A.Transient synovitis of the hip

B.Slipped upper femoral epiphysis

C.Perthes' disease

D.Developmental dysplasia of the hip

E.Septic arthritis

Answer:Perthes' disease

Explanation:

Perthes disease is caused by avascular necrosis of the femoral head - it presents with progressive hip pain, limp and stiffness

Important for meLess important

Perthes' disease is the correct answer here based on the age of the patient and duration of pain. Patients with Perthes' will have pain which progresses over a few weeks and heals over a period of 2-3 years, there is often associated limp and reduced range of motion.

Perthes' occurs due to avascular necrosis of the femoral head and classically presents in children age 4-8 years. In contrast, slipped upper femoral epiphysis peaks in prevalence between ages of 10 and 15 and is typically in overweight or tall thin adolescents. Developmental dysplasia would present with a more insidious history and gait disturbance being a more prominent feature

Transient synovitis of the hip is not the correct answer as there is no history of proceeding viral illness and this condition typically self-resolves within 7-10 days.

There are no features concerning for septic joint in the stem of the questions making Perthes' more likely.

Question:

A 25-year-old female presents to clinic complaining of weakness in her upper and lower limbs primarily in the evening, most noticeable when walking up stairs. She is also having trouble keeping her eyes open when driving long distances but denies feeling tired.

On examination, she develops bilateral ptosis when staring upwards for an extended period and her proximal arm strength pathologically fatigues after repeated exertion.

Her nerve conduction tests reveal a decrement in the amplitude of the compound muscle action potential on repetitive nerve stimulation.

Before commencing immune suppression for a patient with the syndrome described above, which of the following medications may provide symptomatic relief?

A.Pyridostigmine

B.Propranolol

C.Donepezil

D.Baclofen

E.Modafinil

Answer:Pyridostigmine

Explanation:

Pyridostigmine is a long-acting acetylcholinesterase inhibitor that reduces the breakdown of acetylcholine in the neuromuscular junction, temporarily improving symptoms of myasthenia gravis

Important for meLess important

In the mild forms of myasthenia gravis or symptomatic disease, acetylcholinesterase inhibitors are used initially. These agents include pyridostigmine, neostigmine, and edrophonium. Pyridostigmine is used for maintenance therapy.

Soon after diagnosis patients with more severe forms of the disease require immune suppression, initially through corticosteroids followed by a steroid sparing agent. Patients may also require plasma exchange or intravenous immunoglobulin in certain cases.

Question:

A 5-year-old boy presents with puffiness around his eyes and fatigue. His mum also reports that he has developed dark urine, and has been passing urine less frequently than usual. He is otherwise well, however his mum tells you he did have a crusty lesion above his lip a few weeks ago that was treated with antibiotics.

On examination, he appears comfortable. He has mild oedema affecting the feet and hands, and some peri-orbital oedema. His observations are stable, other than a raised blood pressure reading of 130/80 mmHg.

Urinalysis shows:

Blood +++

Protein ++

Nitrites -

Leucocytes -

Glucose -

What is the most likely diagnosis based on this information?

A.Haemolytic uraemic syndrome

B.IgA nephropathy

C.Minimal change disease

D.Post-streptococcal glomerulonephritis

E.Rhabdomyolysis

Answer:Post-streptococcal glomerulonephritis

Explanation:

Post-streptococcal glomerulonephritis typically presents with haematuria, proteinuria/oedema, hypertension and oliguria

Important for meLess important

Post-streptococcal glomerulonephritis is the correct answer here. The patient presents with periorbital oedema, oliguria, proteinuria and haematuria after impetigo. This is classical of post-streptococcal glomerulonephritis, which tends to occur 1-3 weeks following an upper respiratory tract infection (URTI), and 3-6 weeks following a skin infection.

Haemolytic uraemic syndrome may have similar urinalysis findings, however, it would classically present with profuse diarrhoea due to infection with Escherichia coli O157, and is therefore not the most likely diagnosis here.

IgA nephropathy presents similarly and also occurs after an upper respiratory tract infection, but has a shorter latency period (1-2 days following the infection). As the child had impetigo a few weeks prior to developing symptoms, this makes post-streptococcal glomerulonephritis the most likely answer here.

Minimal change disease is a common cause of nephrotic, not nephritic, syndrome. Nephrotic syndrome presents with oedema and proteinuria so could present similarly to this case, however it would not explain the haematuria.

Rhabdomyolysis is incorrect. It could result in dark ('cola coloured') urine due to myoglobinuria, however does not explain the clinical picture here as it occurs due to muscle breakdown, typically following strenuous exercise or a crush injury, and tends to present with myalgia.

Question:

A 55-year-old man has a 3-month history of progressive speech difficulties and dysphagia. He denies any problems with his vision.

On examination, he struggles with articulation and struggles with swallowing water. When examining the tongue, there are fasciculations present. There is a mild general weakness of the lower limbs and hypotonia and atrophy of the calf muscles, however, hyperreflexia is noted in the ankles. His sensation is intact. He is subsequently referred and diagnosed.

Given the likely diagnosis, regarding his nutrition, what is the most appropriate step in his management?

A.Nasogastric tube

B.Nasojejunal tube

C.Percutaneous gastrostomy tube

D.Percutaneous jejunostomy tube

E.Total parenteral nutrition

Answer:Percutaneous gastrostomy tube

Explanation:

Percutaneous gastrostomy tube (PEG) is the preferred way to support nutrition in patents with motor neuron disease

Important for meLess important

Percutaneous gastrostomy tube is correct. This patient has a mixture of upper motor neurone signs (hyperreflexia) and lower motor neurone signs (fasciculation and atrophy) with an absence of sensory symptoms, which should raise suspicion of motor neurone disease (MND). Due to the presence of dysphagia and slurred speech, it is likely that this patient will have an unsafe swallow. NICE recommends discussing nutrition with patients who have MND due to the complications that can arise, such as aspiration pneumonia and choking. Given that this patient is likely to require nutritional support long-term (usually more than 4 weeks), the most appropriate management step would be the insertion of a percutaneous endoscopic gastrostomy (PEG) tube. Adequate and safe nutrition may be associated with a better quality of life and survival.

Nasogastric tube is incorrect. Although this may be used initially in patients with dysphagia, they are not used long-term (usually more than 4 weeks) and would require repeated removal and re-insertion, which can be unpleasant and inconvenient. A more appropriate option would be a PEG tube as it can be used long-term and may be associated with a better quality of life and survival.

Nasojejunal tube is incorrect. This may also be used initially in patients with dysphagia, however, it is not used long-term and would require repeated removal and re-insertion, which can be unpleasant and inconvenient, and the process itself is more difficult and carries more complications. A more appropriate option would be a PEG tube as it can be used long-term and may be associated with a better quality of life and survival.

Percutaneous jejunostomy tube is incorrect. Although this may be used long-term, its insertion is more difficult and carries a higher risk of complications such as infection, bleeding, bowel perforation and intraperitoneal bleeding.

Total parenteral nutrition is incorrect. This is a form of parenteral feeding and is indicated in cases where there is a non-functional, inaccessible, or perforated gastrointestinal tract. This patient does not have any of these features, and the gastrointestinal tract is still functional in MND, therefore it would be inappropriate to offer total parenteral nutrition (TPN). TPN requires close observation and follow-up and carries complications such as sepsis and liver dysfunction.

Question:

Terry is a 76-year-old man who has recently had a stroke and is being prepared for discharge from the ward. The occupational therapist wants to know how Terry will cope at home with activities of daily living (ADLs).

Which measure should they use to best assess this?

A.Barthel index

B.Frailty index

C.HASBLED

D.CHA2DS2-VASc

E.CURB-65

Answer:Barthel index

Explanation:

The Barthel index is a scale that measures disability or dependence in activities of daily living in stroke patients

Important for meLess important

Performance in activities of daily living can be measured using the Barthel index. It includes ten criteria: the presence or absence of faecal incontinence, presence or absence of urinary incontinence, help needed with grooming, help needed with toilet use, help needed with feeding, help needed with transfers (e.g. from chair to bed), help needed with walking, help needed with dressing, help needed with climbing stairs, help needed with bathing .

The frailty index measures the health of elderly people and how vulnerable they are to poor outcomes.

HASBLED assesses the risk for major bleeding in patients who are on anticoagulation.

CHA2DS2-VASc is the tool used to identify which patients with atrial fibrillation require anticoagulation.

CURB-65 is a score used to risk stratify patients with community acquired pneumonia.

Question:

A 67-year-old woman presents with lethargy, depression and constipation. A set of screening blood tests reveals the following:

Calcium 3.05 mmol/l

Albumin 41 g/l

What is the single most useful test for determining the cause of her hypercalcaemia?

A.ESR

B.Phosphate

C.Vitamin D level

D.Parathyroid hormone

E.ACE level

Answer:Parathyroid hormone

Explanation:

Parathyroid hormone levels are useful as malignancy and primary hyperparathyroidism are the two most common causes of hypercalcaemia. A parathyroid hormone that is normal or raised suggests primary hyperparathyroidism.

Question:

What is the main mechanism of action of ondansetron?

A.Dopamine receptor agonist

B.5-HT2 receptor antagonist

C.Dopamine receptor antagonist

D.5-HT2 receptor agonist

E.5-HT3 receptor antagonist

Answer:5-HT3 receptor antagonist

Explanation:

Question:

You review an 82-year-old woman who takes digoxin for atrial fibrillation. Which one of the following factors is most likely to predispose her to develop digoxin toxicity?

A.Concurrent sodium valproate use

B.Liver impairment

C.Concurrent clarithromycin use

D.Hypokalaemia

E.Hypocalcaemia

Answer:Hypokalaemia

Explanation:

Hypokalaemia predisposes patients to digoxin toxicity

Important for meLess important

Question:

A 45-year-old woman presents to the emergency department complaining of nausea and paraesthesia in her arms. Her past medical history includes asthma and a thyroidectomy three weeks ago.

Bloods show the following:

Na+ 141 mmol/L (135 - 145)

K+ 3.6 mmol/L (3.5 - 5.0)

Bicarbonate 25 mmol/L (22 - 29)

Urea 5.6 mmol/L (2.0 - 7.0)

Creatinine 102 µmol/L (55 - 120)

Calcium 1.9 mmol/L (2.1-2.6)

Phosphate 1.6 mmol/L (0.8-1.4)

Magnesium 0.8 mmol/L (0.7-1.0)

ECG shows a QTc of 500ms (350-460).

What is the most appropriate action?

A.Fluid restriction

B.IV calcium chloride

C.IV calcium gluconate

D.IV magnesium sulphate

E.Oral calcitriol

Answer:IV calcium gluconate

Explanation:

Hypocalcaemia: prolonged QT interval is an indication for urgent IV calcium gluconate

Important for meLess important

IV calcium gluconate is correct. In this question, the patient presented with severe hypocalcaemia. Hypocalcaemia frequently presents with non-specific symptoms such as nausea and paraesthesia, however, the fact that she has just undergone a thyroidectomy should alert you to the possibility of disordered calcium homeostasis due to the removal of the parathyroid glands. The fact that this patient is experiencing a prolonged QT interval is an indication of rapid correction of calcium levels via IV calcium gluconate.

Fluid restriction is incorrect. This patient has presented with hypocalcaemia secondary to iatrogenic hypoparathyroidism. This is unlikely to respond to fluid restriction as the patient will already have been nil by mouth for a long time due to the surgery, and thus this is unlikely to be a dilutional problem. Due to the prolonged QT interval, this patient needs urgent IV calcium.

IV calcium chloride is incorrect. In this case, the patient presented with severe hypocalcaemia that has led to ECG changes. This necessitates the correction of the calcium level with some form of IV calcium salt. Currently, the BNF recommends calcium gluconate ahead of calcium chloride as the latter can have an irritant effect on the local tissues.

IV magnesium sulphate is incorrect. This patient has presented with hypocalcaemia secondary to iatrogenic hypoparathyroidism. Occasionally hypocalcaemia can be caused due to hypomagnesaemia. However, in this case, the patient's serum magnesium was within normal limits; therefore, this is not the case.

Oral calcitriol is incorrect. This patient has presented with acute hypocalcaemia secondary to thyroid surgery. This is an acute presentation of hypocalcaemia with ECG changes requiring urgent IV calcium. Oral calcitriol is useful in patients with chronic hypoparathyroidism and may be useful for this patient in the long term.

Question:

An 85-year-old lady presents to you with a cough, which she has had for several months. She is coughing up white sputum with occasional flecks of blood. She has also been feeling tired, getting hot and sweaty at night and has had increasing difficulty walking with diffuse tenderness in her legs. She admits to smoking 20 cigarettes per day for the past 65 years.

What is the most likely diagnosis?

A.Small cell carcinoma of the lung

B.Goodpasture syndrome

C.Alveolar cell carcinoma

D.Active tuberculosis

E.Legionnaire's disease

Answer:Small cell carcinoma of the lung

Explanation:

Small cell lung cancers are more likely than alveolar cell carcinomas of the lung in smokers

Important for meLess important

The fever, night sweats and fatigue this lady is experiencing may be a symptom of infection or 'B symptoms' of cancer, so both possibilities must be considered. The duration of symptoms, colour of sputum and the history of smoking would point towards cancer or tuberculosis rather than Legionnaire's disease. As there is a smoking history and no history of tuberculosis exposure is mentioned in the stem, this is more likely to be cancer.

Difficulty walking and muscle tenderness are features of Lambert-Eaton myasthenic syndrome, which is one of many paraneoplastic syndromes associated with small cell lung cancers. This is caused by an autoimmune attack of the voltage-gated calcium channels on the presynaptic motor nerve terminal. It is thought that autoantibodies develop to the same channels found in the cancer cells and subsequently attack the motor terminal as well. This paraneoplastic syndrome further supports the diagnosis of cancer over tuberculosis.

Alveolar cell carcinomas are not smoking associated.

Goodpasture syndrome could present the same symptoms of haemoptysis and systemic symptoms could also be expected. It is however much less common than small cell carcinoma of the lung and is therefore not the most likely diagnosis.

Question:

A 58-year-old male attends his general practice complaining of intermittent central chest pain on exertion, which settles on rest. He has a background of hypertension, type 2 diabetes and has a BMI of 32kg/m². He takes ramipril, amlodipine and metformin.

An ECG is conducted by his general practitioner and the results are shown below:

© Image used on license from Dr Smith, University of Minnesota

What does the ECG show?

A.Inferior STEMI

B.Lateral STEMI

C.Left ventricular hypertrophy

D.NSTEMI

E.Normal ECG

Answer:Left ventricular hypertrophy

Explanation:

The ECG shows large R waves in the left-sided leads (V5, V6) and deep S-waves in the right-sided leads (V1, V2). There is also ST elevation in leads V2-3. These findings are consistent with left ventricular hypertrophy. Furthermore, there is also T-wave inversion present in leads V5 and V6, known as the left ventricular 'strain' pattern. In this case, the most likely cause of left ventricular hypertrophy is hypertension. LVH may be asymptomatic, but as it progresses it can cause shortness of breath, palpitations and anginal-type chest pain.

An inferior STEMI would cause ST elevation in leads II, III and aVF. These findings are not present in this ECG. Additionally, whilst acute coronary syndrome is an important differential for chest pain, the fact it settles with rest makes this less likely.

A lateral STEMI would cause ST elevation in leads I, aVL and V5-V6. These findings are not present in this ECG. As mentioned above, an acute coronary syndrome is an important differential but the resolution with rest makes it less likely.

The history is not typical for an NSTEMI, as the pain settles on rest. In an NSTEMI, there may be signs of ischaemia on ECG, for example ST depression, T-wave changes or transient ST elevation, or it may be normal. The ECG changes above are not found in NSTEMI.

Normal ECG is incorrect as this ECG has large R-waves and deep S-waves as mentioned above. This would not be expected as a variation of normal, and represents underlying pathology.

Question:

A 30-year-old African woman is seen in clinic with a 5-month history of cramping right upper quadrant pain that is worse when eating fatty meals. The patient is afebrile and an abdominal examination is unremarkable. Her BMI is 26 kg/m². She has a history of Crohn's disease and she has been taking maintenance treatment with methotrexate and has been flare-free for the last year.

What risk factor is most likely contributing to this patient's presentation?

A.Crohn's disease

B.Her age

C.Her ethnicity

D.Primary biliary cholangitis

E.Primary sclerosing cholangitis

Answer:Crohn's disease

Explanation:

Crohn's disease is a risk factor for gallstones

Important for meLess important

Right upper quadrant (RUQ) cramping pain that is exacerbated by eating fatty foods suggests the presence of biliary colic and should raise suspicion of gallstones.

Crohn's disease is correct as it is a risk factor for the development of gallstones. This is because it affects the terminal ileum which is involved in the metabolism of bile salts. Excessive bile salts escape into the colon and are reabsorbed and return to the liver, resulting in excessive secretion of bile pigments and the production of black stones.

Her age is incorrect as the risk of gallstones increases significantly after the age of 40 years.

Her ethnicity is incorrect as people of Caucasian ethnicity are at an increased risk of gallstones. The risk of gallstones is lower in people of African ethnicity.

Primary biliary cholangitis (PBC) is incorrect. Although PBC may lead to the development of gallstones, this typically first presents with pruritus, fatigue, and cholestatic jaundice. This patient does not have these features and only has gallstones in isolation, therefore this option is less likely.

Primary sclerosing cholangitis (PSC) is incorrect. Although PSC can lead to the development of gallstones, it is more common in those with ulcerative colitis (UC) rather than those with Crohn's disease. Furthermore, methotrexate does not play a role in the management of UC. PSC also presents with fatigue, pruritus, and cholestatic jaundice, which are not seen here.

Question:

A 52-year-old female has very bad sunburn after only being outside for a very short period of time. What antibiotic is most likely to have caused this?

A.Metronidazole

B.Co-amoxiclav

C.Doxycycline

D.Ciprofloxacin

E.Erythromycin

Answer:Doxycycline

Explanation:

Doxycycline is the most likely answer as it is the only antibiotic stated above that can cause photosensitivity.

Question:

You are reviewing a 24-year-old lady who has had episodes of wheeze and shortness-of-breath. She is otherwise fit and well, and has no significant past medical history. Her wheeze improves with her brother's 'blue inhaler'. She also complains of having a blocked nose for years.

Which of the following medications is it most important to avoid?

A.Aspirin

B.Pseudoephedrine

C.Ipratropium

D.Prednisolone

E.Paracetamol

Answer:Aspirin

Explanation:

Samter's triad = asthma + aspirin sensitivity + nasal polyposis

Important for meLess important

In patients with asthma, aspirin and other NSAIDs should be avoided as these may precipitate an asthma exacerbation. The combination of asthma, aspirin sensitivity and nasal polyps is known as Samter's triad.

None of the other medications would be contraindicated, though pseudoephedrine is used as a nasal decongestant and would not improve the obstructive symptoms associated with nasal polyps.

Question:

A 60-year-old male is undergoing his final cycle of ICE (ifosfamide, carboplatin, and etoposide) chemotherapy for non-Hodgkin's lymphoma. What condition is this patient at higher risk of developing due to his treatment regime?

A.Pseudogout

B.Gout

C.Rheumatoid arthritis

D.Systemic lupus erythematous (SLE)

E.Sjogren's syndrome

Answer:Gout

Explanation:

Chemotherapy patients are at increased risk of gout from increased urate production

Important for meLess important

Cytotoxic drugs cause an increase in the breakdown of cells, releasing products that are degraded into uric acid. Hyperuricaemia is a known risk factor for gout.

Pseudogout is characterised by calcium pyrophosphate (CPP) crystals in the joint. Chemotherapy is not a known risk factor for pseudogout or CPP formation.

Rheumatoid arthritis is an autoimmune disease with a strong genetic link. It is not known to be linked to chemotherapy.

SLE and Sjogren's syndrome are autoimmune diseases. Their exact causes are unknown but are likely due to a combination of genetic and environmental factors. Chemotherapy is not a known risk factor for either.

American journal of cancer - https://link.springer.com/article/10.2165%2F00024669-200201060-00004

Question:

A 24-year-old male presents to the emergency department with a painful right knee associated with lethargy and feverish symptoms. His past medical history includes a Chlamydia trachomatis infection two weeks previously. Observations show:

Respiratory rate 17 breath/min

Heart rate 84 beats/min

Blood pressure 122/76mmHg

Temp 37.3ºC

Oxygen saturations 97% on room air

Which of the following would most likely be observed in a sample of synovial fluid taken from this patient's knee?

A.Chlamydia trachomatis

B.Staphylococcus aureus

C.Negatively birefringent crystals

D.Positively birefringent crystals

E.Sterile synovial fluid with a high white blood cell count

Answer:Sterile synovial fluid with a high white blood cell count

Explanation:

Reactive arthritis: develops after an infection where the organism cannot be recovered from the joint

Important for meLess important

The correct answer is sterile synovial fluid with a high white blood cell count. The patient's presentation is suggestive of reactive arthritis, a seronegative spondyloarthritis classically associated with oligoarthritis of the lower limbs following a gastrointestinal or urogenital infection 1-4 weeks previously. The pathological process is aseptic, does not involve salt crystal formation, but is likely to cause increased white blood cells in the fluid (mostly polymorphonuclear leukocytes).

Chlamydia trachomatis is incorrect; whilst this organism may have caused the reactive arthritis, this is an aseptic pathological process, so no bacteria would be seen in the synovial fluid.

Staphylococcus aureus is incorrect. This is more likely to be present in septic arthritis, a condition not suggested by the clinical history or observation results.

Negatively birefringent crystals is incorrect as this is commonly seen in gout.

Positively birefringent crystals are seen in calcium pyrophosphate deposition (pseudogout).

Question:

An 82-year-old lady with metastatic gastric adenocarcinoma presented with recurrent vomiting and abdominal pain. On examination, she was found to have a painful palpable umbilical node. This metastatic nodule representing advanced malignancy is eponymously referred to as?

A.Sister Mary Joseph's node

B.Virchow's node

C.Peabody's sign

D.Bouchard's node

E.Heberden's node

Answer:Sister Mary Joseph's node

Explanation:

Sister Mary Joseph node is a palpable nodule in the umbilicus due to metastasis of malignant cancer within the pelvis or abdomen

Important for meLess important

Sister Mary Joseph node - metastatic umbilical lesion - is an important finding in advanced malignancy

Virchow's node is an enlarged left supraclavicular lymph node seen in various internal abdominal malignancies

Peabody's sign is clinically found in patients with a deep vein thrombosis (DVT) and a positive test indicated by calf muscle spasm occurring on elevation and foot extension of the affected leg

Bouchard's node is a sign of osteoarthritis and a bony outgrowth of the proximal interphalangeal joints

Heberden's node is a sign of osteoarthritis and a bony outgrowth of the distal interphalangeal joints

Question:

A 28-year-old woman is seen in the endocrine clinic with the results of the thyroid function tests shown below. For the preceding 2 weeks, she has been suffering from palpitations, excessive sweating and unintentional weight loss. On examination, she has a notable thyroid goitre, which is tender upon palpation.

Thyroid stimulating hormone (TSH) 9.4 mU/L (0.5-5.5)

Free thyroxine (T4) 6.4 pmol/L (9.0 - 18)

What is the most likely diagnosis?

A.Follicular carcinoma

B.Grave's disease

C.Hashimoto's disease

D.Papillary carcinoma

E.Subacute (De Quervain's) thyroiditis

Answer:Subacute (De Quervain's) thyroiditis

Explanation:

Thyrotoxicosis with tender goitre = subacute (De Quervain's) thyroiditis

Important for meLess important

Subacute (De Quervain's thyroiditis) is an acute and painful swelling to the thyroid gland, likely preceded by a viral infection. There is an initial period of hyperthyroid, due to the release of thyroid hormone from damaged cells. Following the hyperthyroid state, a period of hypothyroid then ensues, eventually resolving back to a euthyroid state. The point that differentiates this diagnosis from the rest is a tender goitre, which is not anticipated in other causes of thyrotoxicosis.

Follicular carcinoma of the thyroid accounts for approximately 15% of thyroid carcinomas, more common in females, with the peak incidence in the 40-60 age bracket. Presentation is commonly an asymptomatic thyroid mass that is painless, and not associated with abnormal thyroid activity.

Grave's disease is a hyperthyroid state caused by autoimmune activation of TSH receptors. A goitre is usually present, but this would be painless on palpation. Associated proptosis and pretibial myxoedema can also present alongside the classic symptoms of thyrotoxicosis.

Hashimoto's disease, which is autoimmune-mediated thyroiditis, causes a hypothyroid state. A goitre can be present but would not be tender upon palpation.

Papillary carcinoma is the most common well-differentiated thyroid cancer. Presentation is typically an asymptomatic thyroid mass, sometimes associated with pressure symptoms on local structures. Derangement in thyroid function is not observed.

Question:

A 62-year-old man presents with an episode of collapse. He states that the episode of the collapse was preceded by the worst headache of his life. He denies any recent head injuries. On examination, you note nuchal rigidity and photophobia. Observations are within normal limits.

A CT brain is arranged (performed 4 hours after the onset of the headache):

CT brain (non-contrast) No acute intra-cranial abnormality

Which of the following is the most appropriate action?

A.CT angiogram

B.Consider alternative diagnoses

C.Digital subtraction angiogram

D.Lumbar puncture

E.MRI angiogram

Answer:Consider alternative diagnoses

Explanation:

If subarachnoid haemorrhage is suspected but a CT head done within 6 hours of symptom onset is normal, do not do an LP, consider an alternative diagnosis instead

Important for meLess important

Consider alternative diagnoses is correct. Recently, 2 major studies showed that in patients presenting with an acute headache suspicious of aneurysmal subarachnoid haemorrhage (SAH), the negative predictive value (NPV) of a head CT scan performed within 6 hours after headache onset is 100% if the scan is made on a third-generation CT scanner performed in a university-affiliated tertiary care teaching hospital and interpreted by a neuroradiologist or general radiologist who routinely reports head CT images. Therefore in this case, since the CT scan has been performed at 4 hours post headache onset, SAH can be definitely excluded.

CT angiogram is incorrect. If the non-contrast CT confirmed a SAH then an urgent CT angiogram is required to identify the causal pathology, define the anatomy of the aneurysm, and plan specific treatment.

Digital subtraction angiogram is incorrect. Digital subtraction catheter angiography remains the gold standard for diagnosis and characterisation of vascular abnormalities, and in many centres, even if the causative lesion is identified on MRA or CTA and it is thought to require surgical management, a catheter study is carried out. However, in the first instance, a CT angiogram is required. In this case, a SAH has been excluded and this investigation is therefore not required.

Lumbar puncture is incorrect. A lumbar puncture is only required if the initial CT brain performed > 6 hours post onset of headache is negative.

MRI angiogram is incorrect. Although MRI is helpful to assess underlying brain parenchyma, MRI angiograms (MRA) are not as good as CT angiograms. Unlike CT angiography, MRA is not able to see and capture images of calcium deposits within the blood vessels. MRA evaluation of small vessels, in particular, may be difficult. In this case, a SAH has been excluded, and an MRI angiogram is therefore not indicated.

Question:

A 41-year-old woman has been recalled for a repeat cervical smear by her general practitioner (GP). She previously had her routine cervical smear last year which showed the presence of high-risk human papillomavirus (HPV) but no abnormal cytology. Her repeat cervical smear is still positive for high-risk HPV with no cytological abnormalities.

What is the most appropriate step in this patient's management?

A.Refer for colposcopy

B.Repeat cervical smear in 3 months

C.Repeat cervical smear in 3 years

D.Repeat cervical smear in 6 months

E.Repeat cervical smear in 12 months

Answer:Repeat cervical smear in 12 months

Explanation:

Cervical cancer screening: if 1st repeat smear at 12 months is still hrHPV +ve → repeat smear 12 months later (i.e. at 24 months)

Important for meLess important

Repeating the cervical smear in 12 months is correct as this is her 1st repeat smear that is still positive for high-risk strains of human papillomavirus (hrHPV) but with no cytological abnormalities.

Colposcopy is incorrect as it is not indicated in this case. It would be indicated if this was her 3 successive annual cervical smear that is still positive for hrHPV but with no cytological abnormalities.

Repeating a cervical smear after 3 months is incorrect because it is indicated if the first smear is not adequate.

Repeating the cervical smear in 3 years is incorrect because it would be in line with returning her to routine recall under the cervical screening programme. As hrHPV had been detected this would not be appropriate.

Repeating a cervical smear after 6 months is incorrect because it would usually be indicated as a test of cure following treatment for cervical intraepithelial neoplasia.

Question:

A 6-year-old boy comes to see you with his mother. He reports that he has pain in his knees and calves bilaterally at night which has been ongoing for the past 6 months. These pains are worse if he has played football in the daytime. He describes that these pains can cause him to wake up at night time around 1-2 times per month. Examination of the knee is unremarkable. He is otherwise fit and well.

Which one of the following is the most likely diagnosis?

A.Juvenile rheumatoid arthritis

B.Bipartite patella

C.Osteosarcoma

D.Growing pains

E.Osteochondritis dissecans

Answer:Growing pains

Explanation:

Growing pains are a common complaint in children aged 3-12 years. These usually present with children complaining of pains in their legs. When seeing children who are presenting with these symptoms it is important to check that there are no 'red flags'

Osteosarcoma is rare, but it is an important diagnosis to rule out. Features of osteosarcoma include an unexplained lump, unexplained bone pain or unexplained swelling.

Juvenile rheumatoid arthritis usually presents as fever, rash and symmetrical joint pain and swelling.

Osteochondritis dissecans is a joint disorder in which cracks form in the articular cartilage and underlying subchondral bone. This results in joint pain, locking and swelling.

Bipartite patella is a condition in which the kneecap is formed of 2 separate bones -it is usually asymptomatic.

Question:

A 59-year old woman presents to the emergency department with a cough, fever and pleurisy. Her chest x-ray reveals right lower zone consolidation. Further investigations suggest sepsis and the sepsis six protocol is started. Her blood test identifies a thrombocytopenia with a platelet count of 9 x 109/L. She does not currently have any active bleeding and is not scheduled for any invasive procedures. Which of the following conditions would contraindicate the use of platelets to treat this patients thrombocytopenia?

A.Thrombotic thromboytopenic purpura

B.Angiodysplasia

C.Ischaemic heart disease

D.Factor V Leiden

E.Disseminated intravascular coagulation

Answer:Thrombotic thromboytopenic purpura

Explanation:

Platelet transfusion threshold: 10 x 109 for patients not bleeding or having an invasive procedure- except where CI or alternative treatments for their condition

Important for meLess important

In patients who are not currently bleeding or about to undergo a procedure, platelet transfusion should be performed if platelets fall below 10 x 109/L, however, there are certain conditions in which the use of platelet transfusion is associated with increased risk of death. One of these is thrombotic thrombocytopenic purpura, which should be treated with corticosteroids or other immunomodulatory medications. Other conditions which should be reviewed before prescribing platelets are listed in the notes below.

The other answers to this question do not contraindicate the use of platelet transfusion.

(NICE guideline [NG24] 1.3)

Question:

On approaching the bedside of an elderly obese man, you find him quite drowsy. When you call out his name, you hear a grunting noise. You call out for the nurse's help. Oxygen saturations are 82% on air.

What is the next step in the immediate management of this patient?

A.Endotracheal intubation

B.Head tilt, chin lift, jaw thrust

C.Laryngeal mask airway

D.Nasopharyngeal airway

E.15L high flow oxygen

Answer:Head tilt, chin lift, jaw thrust

Explanation:

Head tilt, chin lift, jaw thrust are three simple manoeuvres that can relieve the majority of airway obstruction secondary to poor pharyngeal muscle tone

Important for meLess important

This is a typical situation where the patient has obstructed his airway secondary to drowsiness which has resulted in reduced pharyngeal muscle tone. Using a head tilt, chin lift, jaw thrust manoeuvre would open the airway and allow return of airflow.

Endotracheal intubation is the only form of 'securing the airway' as all other airway devices are supraglottic. It is never used as a first-line and is usually inserted by a trained professional (anaesthetist) when controlled, secured ventilatory support is required e.g. surgeries, cardiac arrest.

Head tilt, chin lift, jaw thrust is the correct answer as explained above.

Laryngeal mask airway is a supraglottic airway device only inserted by trained professionals where tracheal intubation is difficult and a more definitive airway is required. It would not be used first-line.

Nasopharyngeal airway is a 'bridging' airway adjunct used in semi-conscious patients and would be beneficial if the patient continued to desaturate despite performing a head tilt, chin lift, jaw thrust and providing high flow oxygen.

15L high flow oxygen via a non-rebreathe mask would be used once the head tilt, chin lift, jaw thrust manoeuvres were successful in relieving the obstruction. Without relieving the obstruction, oxygen would not pass the level of obstruction and not reach the lungs.

Question:

Jacky, 30, has had a range of persisting symptoms, which doctors believe is down to hypoadrenalism. Which of the following of Jacky's symptoms would distinguish between primary adrenal failure and secondary adrenal insufficiency?

A.Muscle aches

B.Orthostatic hypotension

C.Skin hyperpigmentation

D.Hyponatraemia

E.Weight loss

Answer:Skin hyperpigmentation

Explanation:

The correct answer in this question is skin hyperpigmentation.

Being aware of the underlying mechanisms of both primary adrenal failure and secondary adrenal insufficiency is helpful in answering this question.

Primary adrenal failure is where the problem is located in the adrenal gland. As the adrenal gland isn't functioning as normal it is secreting a smaller amount of cortisol than it should be. This leads to the pituitary gland responding to this drop in cortisol by secreting more ACTH. ACTH is derived from a larger precursor called pro-opiomelanocortin (POMC), which also happens to be a precursor for beta-endorphin (which isn't important in this case) and melanocyte stimulating hormone (MST). MST, as the name suggests, stimulates melanocytes giving the hyperpigmentation that can be seen in primary adrenal failure.

This process is not seen in secondary adrenal insufficiency, as the underlying mechanism of this is hypopituitarism. This means that, as opposed to a lack of cortisol production as in primary disease, the problem is from a lack of ACTH. A lack of ACTH production means that there is also a lack of POMC, and hence a lack of MST.

Muscle aches, orthostatic hypotension, hyponatraemia and weight loss can all be observed in both primary and secondary disease.

Question:

A 21-year-old student is brought to the surgery by his friends due to him being confused. They report he has been complaining of headaches for the past few weeks. He has a low-grade pyrexia and on examination is noted to have abnormally pink mucosa. What is the most likely diagnosis?

A.Carbon monoxide poisoning

B.Meningitis

C.Paracetamol overdose

D.Subarachnoid haemorrhage

E.Methaemoglobinaemia

Answer:Carbon monoxide poisoning

Explanation:

Confusion and pink mucosae are typical features of carbon monoxide poisoning. A low-grade pyrexia is seen in a minority of cases.

Question:

A 62-year-old woman presents to her general practitioner with bilateral hip pain. The pain has been worsening over a period of 6 months and is now preventing the patient from going on her usual evening walks. The pain worsens throughout the day and is particularly bad on exercise. She drinks half a bottle of red wine every night and is a life-long non-smoker. Her past medical history is remarkable for recurrent gout and Sjogren syndrome.

What is the most likely diagnosis?

A.Gout

B.Osteoarthritis

C.Polymyalgia rheumatica

D.Reactive arthritis

E.Rheumatoid arthritis

Answer:Osteoarthritis

Explanation:

Inflammatory arthritis - pain worse in the mornings

Osteoarthritis - pain worse on exercise

Important for meLess important

This is a classical presentation of osteoarthritis, which is common in the hip joints and can present bilaterally. Pain is commonly worse on exercise and worsens throughout the day, in contrast to inflammatory arthritis, in which the pain is classically worse in the mornings and associated with stiffness.

Gout is uncommon in the hip joints and it would be very unusual for it to present bilaterally and insidiously.

Whilst the presence of Sjogren syndrome should make you think more about rheumatoid arthritis, the history here is very indicative of osteoarthritis, which is very common.

Question:

David, a 75-year-old man, is brought into your general practice clinic by his wife Sally, who is concerned about his mobility and behaviour. Over the last year, Sally has noted that David's movements have been much slower, he walks with a shuffling gait, and has had a few recent falls.

On examination, you note that David has a tremor. On assessing tone in his upper limbs, you note cogwheel rigidity.

Given the most likely diagnosis, which of the following answers best describes the tremor you are most likely to see?

A.Coarse bilateral tremor which improves with rest

B.Unilateral tremor which improves with voluntary movements

C.Tremor which worsens as the patient reaches out to the examiner's finger

D.Unilateral tremor which worsens when the arms are held outstretched

E.Bilateral tremor more in the upper limbs which worsens with action

Answer:Unilateral tremor which improves with voluntary movements

Explanation:

The tremor seen in Parkinson's disease is a unilateral tremor that improves with voluntary movement

Important for meLess important

The most likely diagnosis in this case is Parkinson's disease, characterised by the three classical symptoms: cogwheel rigidity, bradykinesia, and tremor. The tremor seen in Parkinson's disease is often asymmetric, occurs with rest, and improves with voluntary activity. Other symptoms characteristic of Parkinson's disease include mask-like facies and postural instability.

More than 70% of patients with Parkinson's disease have tremor as the presenting feature, therefore answer 1 is incorrect.

A tremor which worsens as the patient reaches out to the examiner's finger is an intention tremor, and this is most frequently associated with cerebellar pathology.

A tremor which worsens when the arms are held outstretched against gravity is a postural tremor, and this is most frequently associated with cerebellar, dystonic, drug-induced or essential tremors.

A bilateral tremor which affects the hands mostly and worsens with action is characteristic of an essential tremor.

Question:

A 65-year-old man with progessive shortness-of-breath is suspected of having idiopathic pulmonary fibrosis. What is the investigation of choice to help confirm the diagnosis?

A.MRI thorax

B.High-resolution CT scan

C.Pleural biospy

D.Serum ACE level

E.Bronchoscopy

Answer:High-resolution CT scan

Explanation:

Question:

A 68-year-old woman who has been diagnosed with essential hypertension five years presents to the general practitioner. She has been measuring her ambulatory blood pressure and her readings show an average of 165/95 mmHg. Regular medications include maximum doses of ramipril and amlodipine.

Her electrocardiogram and urine dip are both normal. On fundoscopy, there are no signs of hypertensive retinopathy. The general examination is normal.

What is the next best management step?

A.Amiloride

B.Bendroflumethiazide

C.Indapamide

D.Losartan

E.Spironolactone

Answer:Indapamide

Explanation:

Poorly controlled hypertension, already taking an ACE inhibitor and a calcium channel blocker - add a thiazide-like diuretic

Important for meLess important

Indapamide is the correct option for treating this case of hypertension. Indapamide is a thiazide-like diuretic and is the next option for NICE guidelines treatment as the patient is already on an ACE inhibitor (ramipril) and a calcium channel blocker (amlodipine).

Amiloride is incorrect as this is not an option in the NICE guidelines for the treatment of hypertension.

Bendroflumethiazide is incorrect as this is a thiazide, not the thiazide-like drugs which are now recommended in the hypertension guidelines.

Losartan is incorrect because this is an angiotensin receptor blocker (ARB), with a very similar site of action to the ACE inhibitors, thus the option is prescribing an ACE inhibitor or an ARB.

Spironolactone is incorrect as this is further down the NICE treatment algorithm for hypertension; the drug to be considered after triple therapy has failed to be effective.

Question:

A 77-year-old man is receiving palliative care after having been diagnosed with glioblastoma. His pain is well controlled on regular paracetamol. However, he is complaining of feeling nauseous.

What would be the most appropriate first-line anti-emetic to prescribe for this patient?

A.Cyclizine

B.Domperidone

C.Metoclopramide

D.Ondansetron

E.Prednisolone

Answer:Cyclizine

Explanation:

Cyclizine is a good first line anti-emetic for intracranial causes of nausea and vomiting

Important for meLess important

Cyclizine is a good first line anti-emetic for intracranial or intra-vestibular causes of nausea and vomiting. It is also used in palliative care for gastrointestinal obstruction. NICE clinical knowledge summary 'palliative care - nausea and vomiting' recommends cyclizine is useful for managing nausea which is vagally-mediated or vomiting caused by mechanical bowel obstruction, raised intracranial pressure, and movement disorders.

Domperidone antagonises the inhibitory effect of dopamine, resulting in stimulation of gastric muscle contraction. It is a good anti-emetic to use for gastro-intestinal pain in palliative care.

Metoclopramide is used for the symptomatic relief of acute migraine, chemotherapy or radiotherapy-induced nausea and vomiting. It is a prokinetic agent which is unlikely to provide relief from nausea related to increased intracranial pressure.

Ondansetron is indicated for the prevention and treatment of nausea and vomiting related to chemotherapy. It is a selective 5-hydroxytryptamine (5-HT3) antagonist.

If steroids are used in palliative care, dexamethasone is usually chosen as the first line. Steroids have multiple indications in this setting including treatment of nausea, anorexia, spinal cord compression and liver capsule pain. Dexamethasone may have a role in treating this patient's nausea if the intracranial pressure is raised and could be considered in addition to cyclizine. Cyclizine should be used as a first-line option if the nausea is thought to be due to raised intracranial pressure.

Question:

You speak to a 52-year-old woman with type two diabetes who has a history of poor diabetic control. She is on metformin, a gliptin and a sulphonylurea. Over the last month, she has had five hypoglycaemic episodes where she has felt sweaty, confused and dizzy. On one occasion, she was sitting at home and had to call her son for help, and on another occasion, she was in a shopping centre and had to seek assistance from bystanders.

What does she need to do with regards to her driving?

A.No need to inform the DVLA; cease driving until free of a hypoglycaemic episode for one month, then can resume driving

B.No need to inform the DVLA; cease driving until free of a hypoglycaemic episode for one week, then can resume driving

C.Notify the DVLA, but can continue driving

D.Notify the DVLA; cease driving until has been free of a hypoglycaemic episode for one week and then can resume driving

E.Notify the DVLA; she will need to temporarily surrender her license while her case is reviewed

Answer:Notify the DVLA; she will need to temporarily surrender her license while her case is reviewed

Explanation:

Patient with diabetes who have had two hypoglycaemic episodes requiring help needs to surrender their driving licence

Important for meLess important

The rules around driving with diabetes can be complicated, but it is important for the safety of our patients and the general public that we know at what stage patients must inform the DVLA.

This woman has had multiple symptomatic hypoglycaemic episodes since starting her sulfonylurea, including two severe episodes. The DVLA count a 'severe' episode as one in which help is required. If patients with medication-controlled diabetes have had more than one severe hypoglycaemic episode within the last twelve months they are required to inform the DVLA and will need to surrender their licence while the DVLA review their situation. Patients may be able to re-apply for it three months later depending on whether or not they have had further episodes. If this woman were a group 2 driver (the driver of a lorry or bus) she would need to notify the DVLA after just one severe hypoglycaemic episode.

Although not relevant in this case, the DVLA also require that drivers who experience an episode of severe hypoglycaemia whilst driving must not drive and must notify DVLA. Drivers must also notify the DVLA if they develop impaired hypoglycaemia awareness.

It is not correct to say that there is no need to inform the DVLA if she ceases driving until free of hypoglycaemic episodes for one month. By law you must inform the DVLA if you suffer more than one episode of severe hypoglycaemia within the last 12 months while awake.

Similarly, not informing the DVLA and ceasing driving until free of hypoglycaemic episodes for one week is also incorrect. Not only is it against the law, but one week would not allow adequate time to alter her diabetic medication and assess for an improvement in her glycaemic control.

Notifying the DVLA but continuing to drive would also be dangerous and illegal. While she must notify the DVLA she should not drive in the interim - doing so would put herself and her fellow road-users at grave risk.

The patient also cannot notify the DVLA but resume driving after one week if free of hypoglycaemic episodes. She will need to inform the DVLA and will have to surrender her licence as she has had two severe hypoglycaemic episodes within the last year. She would be eligible to re-apply for her licence after three months if her hypoglycaemia episodes were controlled. One week would certainly not allow enough time to see a sustained improvement in her hypoglycaemia.

Question:

A 50-year-old woman presents to the emergency department 15 minutes after she started experiencing a complete loss of vision in her right eye. She describes the loss of vision as though a curtain was being lowered over her sight. After another 15 minutes, her vision returned to normal. A diagnosis of amaurosis fugax is made.

What artery is most likely to have been affected in this patient?

A.Basilar artery

B.Central retinal artery

C.Long posterior ciliary artery

D.Peripheral retinal artery

E.Vertebral artery

Answer:Central retinal artery

Explanation:

Amaurosis fugax is a form of stroke that affects the retinal/ophthalmic artery

Important for meLess important

Central retinal artery is the correct option. This patient with amaurosis fugax is experiencing retinal ischaemia. Retinal ischaemia can occur due to occlusion of the arteries supplying the retina. The central retinal artery is one such artery which could be involved. This artery is itself a branch of the ophthalmic artery, which is a branch of the internal carotid artery.

The remaining options are incorrect.

The basilar artery is incorrect. Occlusion of the basilar artery can lead to symptoms such as motor deficits and locked-in syndrome. These are not observed here.

The long posterior ciliary artery is incorrect. It supplies the choroid, ciliary bodies, and iris, and would not be implicated in amaurosis fugax. Occlusion of a long posterior ciliary artery may lead to ocular hypotony through reduced aqueous humour production from the ciliary bodies.

The peripheral retinal artery is incorrect. Different arteries supply the eye, however none are called the 'peripheral' retinal artery.

The vertebral artery is incorrect. The vertebral arteries contribute to the circle of Willis by fusing and becoming the basilar artery. They are not usually implicated in amaurosis fugax. A significant occlusion can lead to a vertebrobasilar stroke, which carries a high risk of death. Involvement of the brainstem and cerebellum leads to a range of symptoms, such as quadriplegia, ataxia, dysphagia, and visual abnormalities.

Question:

A 36-year-old HIV- positive gentleman was referred by his GP to the haematology department with lymphadenopathy, fever and night sweats. Lymph node excision reveals Reed-Sternberg cells and a diagnosis of lymphocyte-depleted Hodgkin lymphoma. He asks you what his prognosis is likely to be. Which one of the following characteristics of this gentleman is associated with an improved prognosis?

A.Age <45 years old at diagnosis

B.Male gender

C.Night sweats

D.Lymphocyte-depleted Hodgkin lymphoma subtype

E.Fever

Answer:Age <45 years old at diagnosis

Explanation:

Hodgkin's lymphoma: signs of poor prognosis: B-symptoms, increasing age, male sex, stage IV disease and lymphocyte depleted subtype

Important for meLess important

Lymphocyte-depleted Hodgkin lymphoma is the rarest form of Hodgkin's lymphoma as well as the most aggressive . It is typically seen in young adults aged 30-37 years of age. Risk factors include a family history and being immunocompromised. Treatment of Lymphocyte-depleted Hodgkin lymphoma is typically adjusted for prognostic factors and the cancer stage (Stage IV being associated with the worst prognosis).

Negative prognostic factors include:

The presence of B symptoms (night sweats, weight loss and fever)

Male gender

Being aged >45 years old at diagnosis

High WCC, low Hb, high ESR or low blood albumin

Question:

A 5-day-old baby has been having noisy breathing since birth. An astute junior doctor recognises that the noise is on inspiration. What is the most common cause of stridor in a neonate?

A.Croup

B.Epiglottitis

C.Laryngomalacia

D.Bronchiolitis

E.Asthma

Answer:Laryngomalacia

Explanation:

Laryngomalacia is the commonest cause of stridor in children

Important for meLess important

Laryngomalacia is the cause of congenital stridor in approximately 50% of neonatal cases.

1 - Croup usually affects children aged 6 months - 3 years

2 - Although Epiglottitis has almost been eliminated since the introduction of the H. influenza vaccine, it typically causes stridor in children aged 2-4 yrs

4 - Bronchiolitis commonly affects individuals aged 3-6 months

5 - Asthma does not typically cause stridor

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3299329/

Question:

A 79-year-old woman is admitted to the acute surgical receiving unit with a sharp pain in her right upper quadrant. The pain radiates to her back and tip of her right shoulder. The pain becomes constant and worse after a meal. She feels slightly nauseated but states that she has not vomited. She does not appear jaundiced. She denies any urinary symptoms or problems with diarrhoea or constipation. Bloods are taken for a FBC, U&E, LFTs, and amylase. What investigation should initially be requested to aid diagnosis?

A.CT abdomen with contrast

B.Magnetic resonance cholangiopancreatography

C.Blood cultures

D.Electrocardiogram

E.Abdominal ultrasound

Answer:Abdominal ultrasound

Explanation:

This patient has a classic history of biliary colic due to gallstones. Abdominal ultrasound is the least invasive way to diagnose gallstones.

CT abdomen is not necessary as abdominal ultrasound can visualise the gallbladder, the ducts, and any stones. CT abdomen may be used if the ultrasound is inconclusive or if the history is suggestive of abscess formation.

There is no need for blood cultures for this patient as she has not presented with infection or with symptoms of sepsis.

An ECG is normally completed on patients who are admitted to hospital but this investigation will not aid in this patients diagnosis.

Magnetic resonance cholangiopancreatography (MRCP) is a detailed way to visualise the gallbladder and pancreas. It may be used to investigate pancreatitis or unexplained abdominal symptoms. It is also used prior to endoscopic retrograde cholangiopancreatography (ERCP) as MRCP is non-invasive.

Question:

You are examining a patient who complains of double vision. Whilst looking forward the patient's left eye turns towards the nose. On looking to the patient's right there is no obvious squint. However, on looking to the left the patient is unable to abduct the left eye and double vision worsens. What is the most likely underlying problem?

A.Right 6th nerve palsy

B.Right 4th nerve palsy

C.Right 3rd nerve palsy

D.Left 6th nerve palsy

E.Left 3rd nerve palsy

Answer:Left 6th nerve palsy

Explanation:

Question:

A 12-year-old girl presents with a two-day history of an itchy rash over her whole body associated with a low-grade pyrexia:

© Image used on license from DermNet NZ

Which one of the following complications is least likely to occur?

A.Disseminated haemorrhagic chickenpox

B.Secondary bacterial infection

C.Encephalitis

D.Dilated cardiomyopathy

E.Pneumonia

Answer:Dilated cardiomyopathy

Explanation:

Dilated cardiomyopathy is not an established complication of chickenpox, unlike the other four options.

Question:

A 28-year-old woman, who is 8 weeks pregnant, recently presented for her booking appointment. A mid-stream urine sample sent to the laboratory has now shown positive cultures. On questioning, she has no urinary symptoms, such as increased frequency, dysuria or haematuria. She is generally well, with no past medical or family history.

Which of the following is the most appropriate next step in the management?

A.Antibiotics if she develops symptoms

B.Antibiotics immediately

C.Prescribe D-mannose

D.Prescribe nothing but safety-net

E.Prescribe nothing but repeat sample in 1 week

Answer:Antibiotics immediately

Explanation:

Asymptomatic bacteriuria in pregnant women should be immediately treated with antibiotics

Important for meLess important

The correct option is antibiotics prescribed immediately as bacteriuria, even if asymptomatic, is a risk factor for developing pyelonephritis (associated with foetal loss, preterm delivery and low birth weight). All women are offered screening for bacteriuria at the booking appointment due to the increased prevalence of urinary tract infections in pregnancy. A mid-stream urine sample should be sent rather than dipstick, which is not adequately sensitive.

Antibiotics should not be delayed until symptoms develop as bacteriuria increases the risk of pyelonephritis, even if asymptomatic. Antibiotic choice is guided by sensitivities and includes nitrofurantoin, amoxicillin and cefalexin.

Prescribing nothing is incorrect as the bacteriuria would remain untreated. Furthermore, if group B streptococcus (GBS) is isolated, patients would require a prescription of antibiotics both presently and prophylactically during delivery (to minimise the risk of neonatal GBS).

Similarly, prescribing nothing and then repeating the sample in 1 week leaves the bacteriuria currently untreated. In asymptomatic bacteriuria, a repeat sample should be requested in 1 week, but this is following treatment completion as a test of cure.

D-mannose may be used as a non-pharmacological treatment for recurrent urinary tract infections. However, current guidelines only advise its use in non-pregnant women as its safety was not established in pregnancy.

Question:

A 40-year-old woman presents to her GP, anxious to be 'checked out' because her older brother recently passed away from a haemorrhagic stroke. She was told that his autopsy showed cerebral aneurysmal rupture. The patient is well currently, with no fever, weight loss, headache or dysuria but has been treated for recurrent urinary tract infections (UTIs) over the past 3 years. Her father had a history of chronic kidney disease (CKD) and passed away from a stroke at age 65.

What is the most appropriate investigation for diagnosis of this patient's condition?

A.Computed tomography (CT) scan of the abdomen with contrast

B.Cranial magnetic resonance angiography

C.Kidneys, ureters and bladder (KUB) X-ray

D.Molecular genetic testing

E.Renal ultrasound scan (USS)

Answer:Renal ultrasound scan (USS)

Explanation:

Ultrasound is the screening test for adult polycystic kidney disease

Important for meLess important

Given the patient's personal and family history, she has an increased risk of autosomal dominant polycystic kidney disease (ADPKD), the most common genetic cause of CKD. Mutations of PKD1/PKD2 genes lead to cystic degeneration of renal parenchyma, resulting in enlargement of the kidneys, hypertension, recurrent UTIs, haematuria and flank pain. ADPKD is also associated with extrarenal manifestations such as pancreatic/hepatic cysts, mitral valve prolapse, aortic regurgitation and intracranial aneurysms (a cause of haemorrhagic stroke). Renal ultrasound (USS) is the preferred screening modality as age-dependent diagnostic criteria have high sensitivity and specificity and because of its low cost, no exposure to radiation and widespread availability.

CT scan of the abdomen can diagnose ADPKD but is inappropriate for screening, considering USS is a relatively cheaper, safer and more widely available option.

This patient needs screening for ADPKD and has no signs of an intracranial aneurysm (e.g. headache). Considering her strong family history of ADPKD-associated intracranial aneurysms she may benefit from aneurysmal screening if she ever develops a headache or neurological symptoms, using cranial magnetic resonance angiography.

A KUB X-ray cannot detect polycystic kidneys. However, it is used commonly as the first-line investigation for urolithiasis.

Genetic testing is less cost-efficient than USS. It is also not a useful screening tool for ADPKD since current genotypic testing can only identify approximately 70% of the known pathogenic intragenic PKD1 and PKD2 mutations.

Question:

A 62-year-old man attends your clinic. He has a history of hypertension and atrial fibrillation for which he is anticoagulated with warfarin. A urine dipstick taken 8 weeks ago during a routine hypertension clinic appointment showed blood + with leucocytes +. Initial urine microscopy and culture shows no growth. The urine dipstick has been repeated on two further occasions with the same finding.

What is the most appropriate action?

A.Take no further action

B.Send a 24-urine sample for protein estimation

C.Refer to nephrology

D.Refer to urology

E.Send a further urine microscopy

Answer:Refer to urology

Explanation:

The incidence of non-visible haematuria is similar in patients taking warfarin to the general population, therefore, these patients should be investigated as normal.

Most haematuria protocols suggest sending younger patients (e.g. < 40 years) to nephrology initially but as this patient is older he should be sent to urology for a cystoscopy.

Question:

A 33-year-old woman attends her GP with numbness and tingling of both hands which is especially bad at night. On examination she has no weakness of finger flexion, extension or abduction but her pincer grip is weakened. She has mild wasting of the thenar eminence bilaterally and both Tinel's and Phalen's signs are positive in both hands.

Which of the following diseases is she most likely to have in her past medical history which would pre-dispose her to this condition?

A.Acromegaly

B.Cushing's Disease

C.Rheumatoid Arthritis

D.Nephrotic Syndrome

E.Lymphoedema

Answer:Rheumatoid Arthritis

Explanation:

Rheumatoid arthritis is a common cause of bilateral carpal tunnel syndrome

Important for meLess important

This lady has features of bilateral carpal tunnel syndrome which is a rare presentation and usually due to conditions which expand the interstitial space with soft tissue growth or fluid. While all these conditions are associated with bilateral carpal tunnel syndrome, the most likely in a 33-year-old is rheumatoid arthritis. Acromegaly more commonly causes carpal tunnel syndrome after age 50. This is a well known association and often comes up in exams.

Question:

You are the FY1 covering surgical high-dependency. One of the nurses asks you to review a 62-year-old lady, who is day 2 post-Hartmann's procedure and has just received two units of packed red cells as her haemoglobin had fallen post-operatively.

She is complaining of shortness of breath, which started 2 hours after her second transfusion was complete. On examination, she is cool peripherally, and fine crackles are heard throughout her chest. Her jugular venous pulse is seen at 7cm with the patient at 45 degrees.

Blood pressure is 163/82 mmHg, heart rate is 112 beats per minute, temperature is 36.4ºC and her oxygen saturations are 94% on 5L via facemask.

Which of the following is the most likely cause of this lady's symptoms?

A.Transfusion associated cardiac overload (TACO)

B.Transfusion-related acute lung injury (TRALI)

C.Atelectasis

D.Pulmonary embolism

E.Hospital acquired pneumonia

Answer:Transfusion associated cardiac overload (TACO)

Explanation:

Transfusion Associated Circularory Overload: Hypertension, raised jugular venous pulse, afebrile, S3 present.

Transfusion Related Acute Lung Injury: Hypotension, pyrexia, normal/unchanged JVP

Important for meLess important

Though similar in presentation, there are features which distinguish classical presentations of TRALI and TACO - namely the JVP (normal vs raised), the BP (low vs high) and pyrexia (prevent vs not).

In this case, these findings are in keeping with TACO. This is managed in the first instance with furosemide (and can be prevented by giving diuretics prophylactically in high-risk patients).

Question:

Umberto is a 41-year-old man who comes to see you as he has been told by a friend that men who have sex with men (MSM) should be offered immunisations.

Umberto has a boyfriend who he has been with for the last 2 months and another current male sexual partner.

Which of the following infections should Umberto be offered immunisation against?

A.Genital herpes

B.Gonorrhoea

C.Hepatitis A

D.Hepatitis C

E.Hepatitis D

Answer:Hepatitis A

Explanation:

Men who have sex with men should be offered immunisation against hepatitis A

Important for meLess important

The Green Book guidelines state:

'MSM with multiple sexual partners need to be informed about the risks of hepatitis A, and about the need to maintain high standards of personal hygiene. Immunisation should be offered to such individuals, particularly during periods when outbreaks are occurring.'

Men who have sex with men should also be offered vaccination for hepatitis B. Since April 2018, MSM up to and including 45 years of age are now eligible for free HPV vaccination on the NHS when they visit sexual health clinics and HIV clinics in England.

There is no current vaccine available for hepatitis C. Likewise, there is no vaccine to prevent hepatitis D. However, prevention of hepatitis B with hepatitis B vaccine also protects against future hepatitis D infection.

Gonorrhoea is a sexually transmitted infections (STIs) which can be treated successfully with antibiotics. However there is no form of vaccine currently available for it.

Similarly, genital herpes can be treated with antivirals such as aciclovir, but no form of vaccine has been approved.

Question:

A 68-year-old man presents to the emergency department reporting sudden onset difficulties with swallowing, vocal hoarseness, double vision, and changes in the sensations of his trunk and limbs on one half of his body. He has a history of atrial fibrillation.

On examination, there is left-sided ptosis and miosis and the patient has left-sided ataxia. There is a loss of pain sensations in the right limbs and trunk and the left side of the face.

His capillary blood glucose and oxygen saturations are normal, and a non-contrast CT head is ordered.

Where is the site of the pathology causing this presentation?

A.Left anterior inferior cerebellar artery

B.Left branches of the posterior cerebral artery

C.Left posterior inferior cerebellar artery

D.Right anterior inferior cerebellar artery

E.Right posterior inferior cerebellar artery

Answer:Left posterior inferior cerebellar artery

Explanation:

Lateral medullary syndrome can be caused by PICA strokes

Important for meLess important

Left posterior inferior cerebellar artery is correct. This patient has lateral medullary syndrome (Wallenberg syndrome) which is caused by an occlusion of the posterior inferior cerebellar artery. This may have occurred due to cardiac emboli as a result of atrial fibrillation.

The structures within the lateral medulla are the sympathetic tract, inferior cerebellar peduncle, part of the trigeminal nerve nucleus, spinothalamic tract, and nucleus ambiguus (which gives rise to some vagus nerve and glossopharyngeal motor fibres). Dysfunction of the sympathetic tract has caused an ipsilateral Horner's syndrome in this patient (ptosis and miosis), and involvement of the trigeminal nerve nucleus and the spinothalamic tract has caused an ipsilateral facial numbness and contralateral body numbness. The inferior cerebellar peduncle connects the medulla to the cerebellum. Involvement of this structure causes ipsilateral ataxia. Finally, involvement of the nucleus ambiguus causes dysphonia and dysphagia as tracts of both the vagus nerve and glossopharyngeal are affected.

This vessel supplies the lateral medulla and occlusion of the left vessel will cause a left-sided Horner's syndrome, ataxia, and facial numbness with contralateral body numbness.

Right posterior inferior cerebellar artery is incorrect. This would cause right-sided Horner's syndrome, ataxia, and facial numbness, with a contralateral body numbness. This does not fit the patient's symptoms.

Right anterior inferior cerebellar artery is incorrect. This vessel supplies the pons and not the medulla. Stroke syndromes that involve the pons may involve the facial nerve nucleus and therefore can cause ipsilateral facial numbness. Right vessel occlusion would lead to right facial numbness.

Left anterior inferior cerebellar artery is incorrect. This vessel supplies the pons and not the medulla. Stroke syndromes that involve the pons may involve the facial nerve nucleus and therefore can cause ipsilateral facial numbness. Left vessel occlusion would lead to left facial numbness

Left branches of the posterior cerebral artery is incorrect. These vessels supply the midbrain and occlusion would cause Weber syndrome. This would involve the oculomotor nerve, causing ipsilateral oculomotor nerve palsy.

Question:

An elderly man complains about the appearance of his nose:

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What is the most likely diagnosis?

A.Sarcoidosis

B.Basal cell carcinoma

C.Systemic lupus erythematosus

D.Alcohol excess

E.Acne rosacea

Answer:Acne rosacea

Explanation:

Rosacea features:

nose, cheeks and forehead

flushing, erythema, telangiectasia → papules and pustules

Important for meLess important

This man has a rhinophyma, a complication of acne rosacea.

Question:

A 58-year-old tennis player presents with repeated episodes of dizziness and shortness of breath every time he plays a match. He denies any chest pain. His medical history includes left-sided hearing loss, however, this has been present since childhood. He takes no medication and smokes 10 cigarettes per day. His blood pressure is 118/86 mmHg and his heart rate is 56 beats per minute.

You perform a cardiovascular exam and hear a harsh murmur, which is synchronous with the start of every carotid pulsation.

Based on the likely diagnosis, what treatment option would most benefit the patient?

A.Balloon valvuloplasty

B.Epley manoeuvre

C.Observe the patient

D.Percutaneous coronary intervention

E.Valve replacement

Answer:Valve replacement

Explanation:

Aortic stenosis may present with syncope / presyncope (e.g. exertional dizziness)

Important for meLess important

This patient is presenting with presyncope (exertional dizziness). Combined with his age, dyspnoea, and a characteristic ejection systolic murmur, aortic stenosis is the most likely diagnosis. In a stable but symptomatic adult patient with aortic stenosis, valve replacement would be the most appropriate treatment.

Balloon valvuloplasty is incorrect because in adults it is limited to patients with critical aortic stenosis who are not fit for valve replacement. This patient is in otherwise good health so would be fit enough for valve replacement.

Epley manoeuvre is incorrect as this is a treatment for benign paroxysmal positional vertigo (BPPV). Whilst the patient fits the age range for BPPV onset, this is unlikely to be the diagnosis as the dizziness is not associated with a change in head position and does not last 10-20 seconds, as episodes of BPPV normally do.

Observe the patient is incorrect. This would be the management of aortic stenosis which is asymptomatic. However, this patient is experiencing troubling symptoms and needs further intervention.

Percutaneous coronary intervention is incorrect. If this man also had exertional chest pain then stable angina would be a good differential, however, given the absence of other cardiac symptoms, stable angina is highly unlikely. Even if this patient did have stable angina, percutaneous coronary intervention would still not be the correct management choice.

Question:

A 22-year-old woman telephones her GP for a referral to antenatal care. She has been trying to conceive for the past year and has now tested positive for pregnancy. Her last menstrual period (LMP) was 5 weeks ago, prompting her to take a pregnancy test. She is medically well with no underlying health conditions, does not smoke, and does not drink alcohol. The patient has a BMI of 34 kg/m².

What is the recommended folic acid intake for this patient?

A.Increase dietary intake of folate only

B.Folic acid 5mg daily, continue until end of 1st trimester

C.Folic acid 5mg daily, continue until end of pregnancy

D.Folic acid 400mcg daily, continue until end of 1st trimester

E.Folic acid 400mcg daily, continue until end of pregnancy

Answer:Folic acid 5mg daily, continue until end of 1st trimester

Explanation:

Pregnant women with a BMI >= 30 kg/m² should receive 5 mg folic acid daily until the 13th week of pregnancy

Important for meLess important

Folic acid intake is important in the 1st trimester of pregnancy to help prevent neural tube defects (NTD). For most pregnant patients, 400mcg daily in the first 12 weeks of pregnancy should prove sufficient. However, patients with a BMI of more than 30 kg/m² should be provided with 5mg daily for the first 12 weeks of pregnancy.

In addition to patients with a BMI of more than 30 kg/m², folic acid should also be prescribed at a 5mg daily dose for those with diabetes, sickle cell disease (SCD), thalassaemia trait, coeliac disease, on anti-epileptic medication, personal or family history of NTD, or who have previously given birth to a baby with an NTD. Ideally, folic acid should be commenced whilst trying to conceive as this will further minimise NTD risk.

Alongside folic acid, NICE recommend all pregnant patients take vitamin D 10mcg (400 units) daily. This should be continued throughout the duration of their entire pregnancy.

Question:

An 81-year-old woman presents to her GP with a leg ulcer.

She says she has had this for the last few weeks and that it is painless.

On examination, there is a superficial erythematous oval-shaped ulcer superior to her medial malleolus. There is surrounding hyperpigmentation of the skin. Her ankle-brachial pressure index (ABPI) is 0.95.

What is the most appropriate first-line management?

A.Compression bandaging

B.Hydrocolloid dressings

C.Oral flucloxacillin

D.Referral to diabetic foot clinic

E.Urgent referral to vascular surgery

Answer:Compression bandaging

Explanation:

Management of venous ulceration - compression bandaging

Important for meLess important

This woman has presented with typical features of venous ulceration. These include the ulcer being superior to the medial malleolus and hyperpigmentation of the skin (an indicator of venous insufficiency). The first-line treatment for a venous ulcer is compression bandaging. An ABPI must be performed before initiating compression treatment to rule out arterial disease, which was done on this patient, with a normal result (0.9-1.2). Therefore compression bandaging is the correct answer.

Hydrocolloid dressings have been used for venous ulceration but are of limited benefit.

Flucloxacillin would be an appropriate treatment for cellulitis. Whilst you can get cellulitis of the legs, you would expect it to be described with the cardinal signs of inflammation (red, hot, swollen and painful with loss of function), and the patient might also be generally unwell.

Diabetic foot ulcers are due to peripheral neuropathy and therefore painless. However, they tend to be on pressure areas (balls and soles of the feet) and may go unnoticed by a patient for a long time due to their loss of sensation.

Arterial ulcers are often described as 'punched out' lesions, and wouldn't have the surrounding skin changes described above. They would also be associated with an abnormal ABPI.

Question:

A 64-year-old male presents to general practice with a 4-day history of pain when defecating. Examination reveals a purple, oedematous and very tender subcutaneous mass at the anal margin.

Given the likely diagnosis, what is the best management for this patient?

A.Analgesia and referral for consideration of excision

B.Admit for incision and drainage of abscess

C.Refer via 2 week wait

D.Stool softeners, ice packs and analgesia

E.Reassurance

Answer:Stool softeners, ice packs and analgesia

Explanation:

Thrombosed haemorrhoids are characterised by anorectal pain and a tender lump on the anal margin

Important for meLess important

Based on the history and examination, this patient likely has thrombosed haemorrhoids. In patients with > 72-hour history, these are managed with stool softeners, ice packs and analgesia.

Analgesia and referral for excision would be appropriate if the history was <72 hours, but this patient has a 4-day history and so this is not the best option.

A 2-week wait referral would be appropriate for suspected cancer but this patient presents with a very acute history with no history of change in bowel habit or weight loss indicative of cancer. Moreover, the examination findings are highly suggestive of thrombosed haemorrhoids.

Although this condition typically resolves within 10 days with supportive management, reassurance by itself is inappropriate. This patient will be in a lot of pain and should be given analgesia and stool softeners to alleviate this.

Question:

A 50-year-old man presents with a facial droop. On examination, he has a crooked smile that droops on the left. He cannot close his left eye or wrinkle the left side of his forehead. He has no upper or lower limb weakness or sensory changes.

What is the most likely cause of this presentation?

A.Lateral medullary syndrome

B.Left cranial nerve VII lower motor neuron lesion

C.Left cranial nerve VII upper motor neuron lesion

D.Right cranial nerve VII lower motor neuron lesion

E.Right cranial nerve VII upper motor neuron lesion

Answer:Left cranial nerve VII lower motor neuron lesion

Explanation:

Bell's palsy is a lower motor neuron condition. Unlike UMN conditions of the face, in LMN conditions the entire side of the patients face is affected

Important for meLess important

Left cranial nerve VII lower motor neuron lesion is correct as it would present with left-sided facial weakness without forehead sparing.

Lateral medullary syndrome is incorrect as it is caused by ischemia to the lateral medulla oblongata. It would present with vertigo, dizziness, nystagmus, ataxia, nausea and vomiting, and dysphagia.

Left cranial nerve VII upper motor neuron lesion is incorrect as it would present with right-sided facial weakness with forehead sparing.

Right cranial nerve VII lower motor neuron lesion is incorrect as it would present with right-sided facial weakness without forehead sparing.

Right cranial nerve VII upper motor neuron lesion is incorrect as it would present with left-sided facial weakness with forehead sparing.

Question:

A 25-year-old man presents with sudden-onset itchy erythematous skin on the abdomen, arms, and legs. On examination, there are white, scaly, round, well-demarcated erythematous plaques all less than 1 cm in size. Some are pale in the centre and slightly yellow.

He has a past medical history of allergic rhinitis, depression, and an episode of tonsillitis 2 weeks ago which resolved with antibiotics. He takes cetirizine and sertraline.

What is the most likely diagnosis?

A.Eczema

B.Guttate psoriasis

C.Lichen planus

D.Pityriasis rosea

E.Pityriasis versicolor

Answer:Guttate psoriasis

Explanation:

Guttate psoriasis commonly presents post-streptococcal infection

Important for meLess important

Guttate psoriasis is correct. This patient has presented with a skin rash occurring suddenly around 2-4 weeks after a streptococcal infection (described as tonsillitis that resolved with antibiotics). This is typical of guttate psoriasis, which is characterised by white, scaly, red, erythematous patches that are usually <1 cm on the trunk and limbs. The term 'guttate' describes the raindrop-like appearance of skin lesions. Guttate psoriasis is classically triggered by a streptococcal infection.

Eczema is incorrect. Although this patient has allergic rhinitis, which can be a risk factor for the development of eczema, this would most likely emerge more slowly and be a more long-term problem. As well as this, the edges of skin lesions in eczema are less well-defined than the plaques in psoriasis (including guttate psoriasis). In older people, eczema is classically seen in flexor surfaces and the creases of the face and neck, which does not apply to this patient, as their lesions are on the trunk and limbs.

Lichen planus is incorrect. This is characterised by an itchy papular, purple, polygonal rash on the palms, soles, genitalia, and arm flexor surfaces and tends to present less acutely. There is often oral involvement with a white-lace pattern on the buccal mucosa. These features do not apply to this patient, making this diagnosis less likely.

Pityriasis rosea is incorrect. This is a self-limiting rash that often first presents with a 'herald patch', which is a rash (usually on the trunk) that appears and precedes the development of the rest of a more generalised rash, which is erythematous, oval, and scaly. The rash tends to run along skin tension lines (lines of Langer) and may show an appearance similar to a fir tree. There are often no prodromal features, unlike this patient who had a preceding streptococcal infection. This patient's rash was sudden-onset in nature without a herald patch, and affects his abdomen and limbs, making this diagnosis less likely.

Pityriasis versicolor is incorrect. This most commonly affects the trunk and has patches that vary in colour (hence the name versicolor), usually from hyperpigmentation, to pink or brown. There are often no prodromal features, unlike this patient who had a preceding streptococcal infection. This patient's rash was sudden-onset in nature without patches of varying colour, and affects his abdomen and limbs, making this diagnosis less likely.

Question:

You are a medical student on placement. During your time on the ward, you meet a patient, Mr. John, who is under investigation for Lung cancer. You learn the results of several investigations have been reported and are heavily suggestive of malignancy. Whilst you are dealing with a different patient in the same bay, Mr. John calls you over and asks if he has cancer. what is the appropriate action?

A.Tell him you don't know anything about the results and that you don't have access.

B.Tell him that you will ask a doctor to come and answer all his questions as soon as possible

C.Tell him the results of the investigations are strongly suggestive of cancer

D.Tell him you're sorry but you're currently dealing with a different patient

E.Tell him the results of the investigations suggest he will be fine

Answer:Tell him that you will ask a doctor to come and answer all his questions as soon as possible

Explanation:

This question focuses on good communication and working within your competence. It is never acceptable to lie to a patient but in this situation, telling him the absolute truth would be working outside your competence as you do not have all the information and are not equipped to answer follow-up questions regarding management and prognosis.

(Domain 1:14. 'You must recognise and work within the limits of your competence'

Domain 3: 31 'You must listen to patients, take account of their views, and respond honestly to their questions')

Question:

A newborn child is assessed. They are found to be in the 25th centile for their weight along with a systolic murmur heard best over the back. When feeling the femoral pulses the doctor notices that there is a radio-femoral delay. Which of the following may be causing these examination findings?

A.CHARGE syndrome

B.Klinefelter's syndrome

C.Patent ductus arteriosus

D.Duodenal atresia

E.Turner's syndrome

Answer:Turner's syndrome

Explanation:

Radio-femoral delay is associated with coarctation of the aorta

Important for meLess important

This question is asking about a neonate presenting with a systolic murmur, low birth weight and radio-femoral delay, these are all characteristic features of coarctation of the aorta. Of the above conditions, only Turner's syndrome has a strong association with coarctation of the aorta.

CHARGE syndrome is a genetic syndrome associated with some congenital heart defects. However, these are most commonly tetralogy of Fallot or ventricular septal defects.

Klinefelter's syndrome is a condition caused by 47, XXY (an extra X chromosome) which characteristically presents in slim tall males with infertility and lack of secondary sexual characteristics.

A patent ductus arteriosus is a common congenital heart defect that will not cause radio-femoral delay. The characteristically associated murmur is a venous hum, which is a continuous murmur.

Duodenal atresia is a congenital defect affecting the lumen of the duodenum, and thus would not be a cause of radio-femoral delay.

Question:

A 23-year-old woman is requesting combined oral contraception. She has been taking the progesterone-only pill (norethisterone) due to concerns about blood clotting adverse effects. She is not satisfied with the irregular bleeding she gets with this medication and wants to change. There are no contraindications to the combined oral contraceptive pill.

What advice should be given to her regarding additional contraception when switching?

A.10-days of additional barrier contraception is needed

B.14-days of additional barrier contraception is needed

C.3-days of additional barrier contraception is needed

D.7-days of additional barrier contraception is needed

E.No additional barrier contraception is needed

Answer:7-days of additional barrier contraception is needed

Explanation:

When switching from a traditional POP to COCP (with correct prior use) 7 days of barrier contraception is needed

Important for meLess important

The safest option in this situation would be to recommend 7-days of barrier contraception while commencing the combined oral contraceptive to prevent unwanted pregnancy. This is the standard length of time that protection needs to be used when commencing this medication outside of menstruation.

10-days of additional barrier contraception is not required as the standard recommendation for the combined oral contraceptive pill is 7 days.

14-days of additional barrier contraception is not required as the standard recommendation for the combined oral contraceptive pill is 7 days.

3-days is too short for barrier contraception use. It is the length of time that would be used when commencing a traditional progesterone-only pill such as norethisterone.

It is incorrect that no additional barrier contraception is required. Although she may be protected, it would be safest to recommend 7-days of additional contraception to prevent unwanted pregnancy.

Question:

A 58-year-old man is diagnosed with stage 2 hypertension and is started on amlodipine by his GP. He already takes three medications and is concerned about the potential for side-effects.

What is a common side-effect of this medication?

A.Bradycardia

B.Cough

C.Headache

D.Hyperhidrosis

E.Tinnitus

Answer:Headache

Explanation:

Calcium channel blockers - side-effects: headache, flushing, ankle oedema

Important for meLess important

Headache is the correct answer. It is a common side-effect of calcium-channel blockers such as amlodipine.

Bradycardia is incorrect. Bradycardia is not a side-effect of calcium-channel blockers. A medication that can cause bradycardia is beta-blockers.

Cough is incorrect. Cough is not a side-effect of calcium-channel blockers. A medication that can cause cough is angiotensin-converting enzyme (ACE) inhibitors.

Hyperhidrosis is incorrect. It is a recognised side effect of calcium-channel blockers but is listed by the BNF as uncommon.

Tinnitus is incorrect. It is a recognised side effect of calcium-channel blockers but is listed by the BNF as uncommon.

Question:

A pregnant woman has serum alpha feto-protein levels measured. Which one of the following is associated with a low alpha-feto protein level?

A.Meningocele

B.Gastroschisis

C.Multiple pregnancy

D.Down's syndrome

E.Anencephaly

Answer:Down's syndrome

Explanation:

AFP

raised in neural tubes defects

decreased in Down's syndrome

Important for meLess important

Question:

An 18-month-old girl is brought to her general practitioner with a three-day history of poor feeding and pulling at their ears. Her observations are as follows:

Respiratory rate of 26 breaths/min

Pulse of 123 beats/min

Temperature of 37.1ºC

Blood pressure of 94/58mmHg

Oxygen saturations of 97%

On examination, you note bulging tympanic membranes with surrounding erythema bilaterally.

What is the appropriate first-line management in this patient?

A.A delayed prescription of flucloxacillin

B.Conservative management, ensuring adequate hydration

C.Immediate prescription of amoxicillin

D.Immediate prescription of flucloxacillin

E.Referral to the paediatric assessment unit

Answer:Immediate prescription of amoxicillin

Explanation:

If antibiotics are required for otitis media, amoxicillin is first-line

Important for meLess important

The correct answer is an immediate prescription of amoxicillin.

This patient likely has acute bilateral otitis media, as they are younger than two-years-old NICE recommends antibiotic management, the first line being amoxicillin. In patients with penicillin allergy clarithromycin or erythromycin may be used.

A delayed prescription of flucloxacillin is incorrect. Flucloxacillin is useful against B-lactamase producing bacteria. It has good activity against a spectrum of gram-positive and gram-negative bacteria. Flucloxacillin is commonly used to treat impetigo, cellulitis, osteomyelitis, otitis externa, diabetic foot infections and infected leg ulcers.

Conservative management, ensuring adequate hydration is incorrect as this patient meets the NICE criteria for antibiotic prescribing.

Immediate prescription of flucloxacillin is incorrect as this is not the antibiotic of choice in this situation.

Referral to the paediatric assessment unit is incorrect as this patient's presentation is not suspicious of serious underlying infection and their observations are all within the normal range for her age.

Question:

An 84-year-old woman on the stroke ward is being assessed by the occupational therapists for discharge home. Upon assessment there are abnormalities noted in her comprehension of tasks.

The patient is asked to follow two simple orders, to open and close her eyes and raise her right hand, which she does not do after being asked to do so. When asked to repeat 3 words and then a sentence she cannot and falls silent. When naming 3 objects (pen, paper, keys) she is fluent in her speech pattern, but is incomprehensible in content. Lastly, when asked to name as many animals as possible in 1 minute, she names 0 animals, but 20 random, unconnected words are spoken.

What is this type of dysphasia?

A.Anomic dysphasia

B.Broca's dysphasia

C.Conductive dysphasia

D.Transcortical motor dysphasia

E.Wernicke's dysphasia

Answer:Wernicke's dysphasia

Explanation:

Wernicke's dysphasia: speech fluent, comprehension abnormal, repetition impaired

Important for meLess important

Wernicke’s dysphasia is correct. This results from damage to Wernicke’s area in the temporal lobe and impairs language comprehension, repetition of words and phrases. In Wernicke’s dysphasia speech is fluent with intact sentence structure, but is lacking meaning.

Broca’s dysphasia is incorrect as this describes a dysphasia where the speech is non-fluent, unlike in this case, because Broca’s area in the frontal lobe connects with the motor cortex to produce the movements required to articulate the words. As a result, repetition of words is also poor. Comprehension is normal in patients with frontal lobe damage, as the language comprehension centres found in the temporal lobe, Wernicke’s area, are intact.

Anomic dysphasia is incorrect as this describes a dysphasia with characteristic word finding difficulties with the use of generic fillers (e.g. “thing”) or circumlocution. People with this dysphasia are fluent, their comprehension is actually intact and repetition of words/phrases good, unlike in this case.

Conductive dysphasia is incorrect as this dysphasia is characterised by word finding difficulties and difficulty in repeating phrases. However, people with conduction difficulties still have intact language comprehension, unlike in this case, and relatively fluent speech and the sentence structure is intact, but may lack meaning.

Transcortical motor dysphasia is incorrect. This dysphasia presents similarly to Broca’s dysphasia, but in transcortical motor there are strong repetition skills; speech is non-fluent, unlike in this case, and comprehension intact.

Question:

Which of the following features is not associated with patent ductus arteriosus?

A.Continuous 'machinery' murmur

B.Bisferiens pulse

C.Heaving apex beat

D.Wide pulse pressure

E.Left subclavicular thrill

Answer:Bisferiens pulse

Explanation:

PDA is associated with a collapsing pulse

Question:

An 18-year-old man is admitted to the emergency department with suspected bacterial meningitis. He complains of a headache that is worse on lying down but relieved with standing.

On examination, there is a generalised maculopapular rash over his torso, which has rapidly been evolving. He suffered a head injury 2 weeks ago where CT performed was insignificant.

His observations are normal apart from a respiratory rate of 33/min.

Venous gas shows:

pH 7.2 (7.31-7.41)

pCO2 6.8 kPa (5.5 - 6.8)

pO2 4.5 kPa (4.0-5.3)

Lactate 5mmol/L (2-4)

What in his presentation warrants neuroimaging to be performed?

A.Postural headache

B.Rapidly evolving generalised maculopapular rash

C.Recent history of head injury

D.Respiratory rate of 33/min

E.Venous blood gas results

Answer:Postural headache

Explanation:

Neuroimaging is not normally indicated in suspected bacterial meningitis unless there are signs of raised intracranial pressure

Important for meLess important

Postural headache is the correct answer. This patient is presenting with suspected bacterial meningitis. Neuroimaging is not normally indicated in meningitis unless there are signs of raised intracranial pressure. In this patient, his headache is a worrying sign of raised intracranial pressure as it is worse on lying down but relieved with standing, indicating that it varies on postural changes. This is suggestive of a raised intracranial pressure, as the pressure within the skull varies with position. Other signs include papilloedema on fundoscopy, continuous or uncontrolled seizures and GCS of less than or equal to 12.

Rapidly evolving generalised maculopapular rash is incorrect. A patient with a rapidly evolving generalised maculopapular rash must urgently be started on antibiotics without delay. A lumbar puncture should also be delayed because of the risk of disseminated intravascular coagulation.

Recent history of head injury is incorrect. This is an important factor to take into consideration with his presentation, however, a CT performed at the time of injury was insignificant. Given that it has been two weeks, and he is now presenting with a rapidly progressive rash and pyrexia with a headache, it is important to exclude meningitis. It is also very rare for a head injury to become serious when the initial CT was insignificant.

Respiratory rate of 33/min is incorrect. This is also a worrying sign and warrants urgent senior input, but again does not warrant neuroimaging as it does not suggest raised intracranial pressure.

Venous blood gas results is incorrect. The pH of 7.2 on these results is a worrying sign on presentation and warrants urgent senior input, however, does not warrant neuroimaging as this is not suggestive of a raised intracranial pressure.

Question:

A 3-month-old girl is brought to the emergency department with a cough, poor feeding and fever. The infant is alert and responsive. She has had all routine vaccines offered. Her observations are temperature 38.1ºC, heart rate 154 bpm, respiratory rate 40/min, and oxygen saturation 91% on air. On examination, there is increased work of breathing. Coarse crackles and a wheeze can be heard across her chest. The infant's heart sounds and ECG are normal. A lumbar puncture is performed and reported as unremarkable. An hour later, the patient has a cardiac arrest.

What is the most likely underlying cause of this arrest?

A.Bronchiolitis

B.Congenital cardiac disease

C.Croup

D.Meningitis

E.Whooping cough

Answer:Bronchiolitis

Explanation:

The most common causes of arrest in children are respiratory

Important for meLess important

Bronchiolitis is the correct answer. The most common causes of cardiac arrest in children are respiratory causes that lead to hypoxia. Bronchiolitis is consistent with a history of poor feeding, cough and fever and the patient's examination findings such as crackles, wheezing and increased respiratory effort.

Congenital cardiac disease is incorrect. This can be a cause of childhood cardiac arrest but is unlikely given this patient has both normal cardiac findings and ECG.

Croup is incorrect. This is a cause of cough but is more common in children aged 6m-2y and causes a 'barking' noise. Croup is an upper respiratory tract infection and so does not explain this patient's respiratory crackles.

Meningitis is incorrect. This does cause a generally unwell infant who may present with a fever and tachypnoea but you would expect to see abnormalities in the analysis of the cerebrospinal fluid, which this patient does not have.

Whooping cough is incorrect. This is associated with a 'whooping' noise as children suck air after a bought of coughing. This patient has been fully vaccinated for their age and pertussis, which causes whooping cough, is routinely vaccinated against at 8 weeks, 12 weeks, 16 weeks and 3 years old. Whooping cough is an upper respiratory tract infection and doesn't typically cause this patient's lower respiratory tract signs such as crackles across the chest.

Question:

Susan, an 11-year-old girl with Down's syndrome presents to the GP with her mother. She is worried about Susan's persistent snoring. As well as Down's syndrome, Susan suffers from asthma, reflux, hyperthyroidism.

Given her past medical history, which of the following may be a causing Susan's snoring?

A.Gastroesophageal reflux disease

B.Previous tonsillectomy

C.Down's syndrome

D.Hyperthyroidism

E.Asthma

Answer:Down's syndrome

Explanation:

Children with Down's syndrome are prone to snoring

Important for meLess important

The correct answer here is Down's syndrome which can be associated with sleep apnoea and snoring. This is due to the low muscle tone in the upper airways and large tongue/adenoids. There is also an increased risk of obesity which in people with Down's syndrome which is another predisposing factor to snoring.

Gastroesophageal reflux disease has not been linked to snoring, however, can be worse at night and lead to a cough.

Tonsillectomy is often used as a treatment for snoring as it removes and enlarged tonsils that can cause upper airway obstruction.

Hypothyroidism and not hyperthyroidism is associated with snoring

Asthma does not cause snoring, but similarly to GORD can cause a nocturnal cough

Question:

A 79-year-old man has been admitted to hospital following a fall. He has intractable bone pain from advanced metastatic prostate cancer. After discussion with both him and the family, it is agreed that he will be managed conservatively and palliated on the ward.

He required 5 mg of subcutaneous morphine twelve times in 24 hours. He was reviewed by the palliative care team, who advised to start a syringe driver of continuous subcutaneous morphine, which covers the full dose he required for the previous 24 hours. The team also recommended to provide appropriate breakthrough pain relief on the 'as required' section of the drug chart.

Which is the correct dose of breakthrough morphine sulphate to prescribe for this patient?

A.5 mg subcutaneously

B.7.5 mg subcutaneously

C.10 mg orally

D.10 mg subcutaneously

E.50 mg subcutaneously

Answer:10 mg subcutaneously

Explanation:

Breakthrough dose = 1/6th of daily morphine dose

Important for meLess important

Prescribing in palliative care can be tricky, and each hospital has its own guidelines.

The general conversions for morphine are:

Oral to subcutaneous: divide oral dose by 2

Breakthrough dosing: divide 24 hour requirement by 6

Dose increase: increase by 30 to 50% of the previous dose

More information can be found in the 'Prescribing in Palliative Care' section of the BNF.

In this case, the patient needed 5 mg x 12 doses = 60 mg in 24 hours. 60 mg divided by 6 is 10 mg.

Therefore, the patient would receive a syringe driver containing 60 mg in 24 hours, plus 10 mg as required as a subcutaneous injection.

Palliative care medications are normally given subcutaneously. If it were to be given orally, you would double the dose as per the conversion factor of 2:1 - in this case, 20 mg. Subcutaneous is generally preferred to oral medication at the end of life - firstly, it doesn't rely on the need for adequate swallowing ability of the patient. Secondly, as patients are dying, blood is redirected from the gastrointestinal tract to the vital organs - meaning less medication is likely to be absorbed into the circulation from the gut. Thirdly, these patients are often nauseous or may be at risk of vomiting; subcutaneous medication bypasses this risk.

Question:

A 65-year-old man presents to the GP with a 3-month history of a new rash on his armpits. Two months ago, he visited the GP with vague epigastric pain and was prescribed omeprazole. Since then, has experienced nausea and vomiting and some weight loss, and this treatment has not worked.

He has a history of asthma and takes salbutamol, and was recently discharged with a 5-day course of prednisolone following an acute exacerbation. His BMI is 26.0 kg/m².

An examination of the skin is performed:

© Image used on license from DermNet NZ

What is the most likely underlying cause for his presentation?

A.Corticosteroid use

B.Gastric adenocarcinoma

C.Gastro-oesophageal reflux disease

D.Hidradenitis suppurativa

E.His BMI

Answer:Gastric adenocarcinoma

Explanation:

Gastric adenocarcinoma is correct. The rash shown in the image is a brown, velvety plaque in the axilla, which is consistent with acanthosis nigricans. This rash has developed over the last 3 months along with this patient's dyspepsia, nausea and vomiting, and weight loss, which should raise suspicion of gastrointestinal cancer. Acanthosis nigricans is associated with gastric adenocarcinoma, which of the options listed, best explains his presentation. Although he has had a long-standing history of type 2 diabetes mellitus, which is also associated with acanthosis nigricans, it is unlikely that 20 years would have elapsed without the development of this rash, and the fact he only takes metformin and his most recent HbA1c measurement was 49 mmol/mol suggests that it is relatively well-controlled.

Corticosteroid use is incorrect. Although excess corticosteroids can lead to weight gain and hence, the development of acanthosis nigricans, it is unlikely that a 5-day course would lead to its development. This rash has also been present for 3 months, which is much longer than the 5 days he has been on the corticosteroids.

Gastro-oesophageal reflux disease is incorrect. Although this could explain his dyspepsia and nausea, it would not explain the vomiting, unexplained weight loss, and acanthosis nigricans as it is not associated with them.

Hidradenitis suppurativa is incorrect. Although this mainly affects areas like the axilla and groin, this presents with recurrent, painful, and inflamed nodules, which are not seen here. This also would not explain dyspepsia, vomiting, and unexplained weight loss.

His BMI is incorrect. Acanthosis nigricans is associated with obesity, and this patient's BMI is slightly over the upper limit of normal (18.5-24.9). It is unlikely that in this patient, his slightly raised BMI would be the culprit given his signs and symptoms of gastric cancer.

Question:

A 45-year-old woman presents to the emergency department with severe right eye pain over the last 3 hours. She denies any changes in vision, nausea, or vomiting. She has a past medical history of rheumatoid arthritis and takes methotrexate, and does not wear contact lenses.

On examination, her pulse is 85 bpm, her blood pressure is 123/74 mmHg, and she is afebrile. The right eye is deep red and injected throughout. There is pain on ocular palpation and the injected vessels do not move. The left eye is normal and her visual fields and acuity are normal.

What is the most likely underlying cause for her presentation?

A.Acute angle-closure glaucoma

B.Acute keratitis

C.Anterior uveitis

D.Episcleritis

E.Scleritis

Answer:Scleritis

Explanation:

Consider scleritis if a patient with rheumatoid arthritis presents with a painful red eye

Important for meLess important

Scleritis is correct. Patients with a systemic connective tissue disease such as rheumatoid arthritis (RA) presenting with an extremely painful and deep red, injected eye should raise suspicion of scleritis. Pain on palpating the eye is often present and visual acuity and pupillary responses may be abnormal depending on which parts of the globe are affected and how severe the symptoms are.

Acute angle-closure glaucoma (AACG) is incorrect. Although this can cause acute severe ocular pain, patients usually have features of systemic upset such as nausea and vomiting, and visual acuity is reduced from the start, as many patients have blurred vision. As well as this, people with AACG also notice halos around lights and the cornea may appear cloudy. These features are not seen in this patient, making this diagnosis less likely.

Acute keratitis is incorrect. Although this can cause a painful red eye, since this affects the cornea, patients describe a foreign body-like gritty sensation, blurring of vision, discharge, and photophobia. An examination may reveal a corneal ulcer. These features are not seen here and acute keratitis is also more common in people wearing contact lenses, which is not the case in this scenario.

Anterior uveitis is incorrect as although this can cause a painful red eye, the pain is generally worse when using the eye, such as when reading or moving the eye. As well as this, a ciliary flush is present, which is a ring of red spreading outwards, which is not seen here as the entirety of this patient's eye is deep red and injected. Anterior uveitis may also have a hypopyon present (pus in the anterior chamber leading to a visible level) and the pupil may be small and irregular due to irregular sphincter muscle contraction.

Episcleritis is incorrect. Although this can cause acute eye redness in people with systemic connective tissue diseases including RA, it is classically not painful or less painful than in scleritis. As well as this, the injected vessels are mobile when gentle pressure is applied, which is not the case here.

Question:

A 23-year-old female patient presents to her general practitioner with a thick, white vaginal discharge that is itchy and is distracting her from her university work. She reports having tried over-the-counter remedies before for these symptoms as she has had 3 previous episodes of this in the past 5 months. She is sexually active and uses condoms and the combined oral contraceptive pill. Her urine dip in the surgery is negative for pregnancy and protein, leucocytes and nitrites are also negative.

What would be the best management option for this patient with her recurrent symptoms?

A.IM ceftriaxone

B.Oral ciprofloxacin

C.Oral fluconazole

D.Oral metronidazole

E.Topical fluconazole

Answer:Oral fluconazole

Explanation:

An induction-maintenance regime of oral fluconazole should be considered for recurrent vaginal candidiasis

Important for meLess important

This patient is presenting with symptoms consistent with thrush (vaginal candidiasis). Over-the-counter treatments include antifungals (such as clotrimazole cream) and are usually successful for the management of one-off episodes of vaginal candidiasis.

As this patient is experiencing recurrent symptoms, an oral preparation of fluconazole is recommended in the British National Formulary. It is important to ensure that the patient is not taking SSRI medications or has hypersensitivity to 'azole' antifungal medications.

IM ceftriaxone and oral ciprofloxacin can be used to manage Neisseria gonorrhoea not thrush.

Oral metronidazole can be used to manage bacterial vaginosis, not thrush.

Topical fluconazole is an uncommon preparation as it is strongly hydrophilic and is not as effective in comparison with other antifungals (such as topical clotrimazole).

Question:

A 32-year-old patient attends her general practitioner with low mood and anhedonia. She has previous tried cognitive behavioural therapy and art therapy with limited success. She is started on citalopram and is referred for some further talking therapy.

Which drug should be avoided with this new prescription?

A.Amoxicillin

B.Levothyroxine

C.Nitrofurantoin

D.Paracetamol

E.Rasagiline

Answer:Rasagiline

Explanation:

SSRIs and MAOIs should never be combined as there is a risk of serotonin syndrome

Important for meLess important

Rasagiline is a monoamine oxidase inhibitors (MAOI) which is used in the management of depression, panic disorder, and social phobias. These were initially introduced in the 1950s and are now only used if other medications are not effective or not tolerated by the patient due to risk of drug interaction, risk of drug-food interaction, and side effects of over-eating and excess lethargy.

As the patient has been started on citalopram, a selective serotonin reuptake inhibitor (SSRI), she should not be prescribed any MAOI concurrently due to the risk of serotonin syndrome.

Serotonin syndrome can present with fever, confusion, seizures, renal and hepatic impairment, arrhythmia, increased muscle tone, and hypersecretion of sweat. To avoid this, patients should be given a 14-day washout period between MAOIs and SSRIs.

Question:

A 53-year-old woman presents with a 1-year history of involuntary urine leakage when she sneezes or coughs. She has also had similar incidents while exercising in the gym, which has caused significant embarrassment and now wears pads whenever she goes out.

She denies urinary urgency or frequency and opens her bladder once at night. She has no bowel-related symptoms.

She has tried pelvic floor exercises with support from a women's health physiotherapist for the past 6 months but still finds the symptoms very debilitating. She denies feeling depressed. She is keen to try further treatment, although is frightened by the prospect of surgery and would prefer alternative measures.

Urinalysis is unremarkable. On vaginal examination, there is no evidence of pelvic organ prolapse.

What is the next most appropriate treatment?

A.Offer a ring pessary

B.Offer a trial of duloxetine

C.Offer a trial of oxybutynin

D.Refer urgently (within 2 weeks) to urogynaecology

E.Advise continuing pelvic floor exercises for a further 6 months

Answer:Offer a trial of duloxetine

Explanation:

Duloxetine may be used in patients with stress incontinence who don't respond to pelvic floor muscle exercises and decline surgical intervention

Important for meLess important

This woman is displaying symptoms that are typical of stress incontinence.

Guidelines recommend offering duloxetine as a second-line treatment if lifestyle measures (such as reducing caffeine and alcohol intake) and supervised pelvic floor muscle exercises are unsuccessful, and if the woman is not keen or suitable for surgical management.

It is thought to work by increasing serotonin and norepinephrine levels in the pudendal motor nucleus of the sacral spinal segments, thereby increasing urethral muscular tone and closure pressure.

It is not usually offered as first-line therapy as side-effects are common (affecting more than 10% of women) and it is less cost-effective than pelvic floor muscle training.

Ring pessaries are used as a non-surgical treatment option for pelvic organ prolapse.

Oxybutynin is an antimuscarinic drug which is used in treating urge incontinence. While some women have mixed clinical picture, it is clear in the scenario that this woman only has stress incontinence.

While a referral to urogynaecology can be offered for further urodynamic investigations and/or a more in-depth discussion about surgery, there is no indication to do this urgently under the 2-week-wait pathway.

Pelvic floor exercises, supervised by a continence adviser, specialist nurse or women's health physiotherapist, should be trialled for at least 3 months in order for maximum benefit. As this woman continues to have troublesome symptoms despite trying this for 6 months, it would not be appropriate to advise her to simply continue the same strategy.

Question:

A 22-year-old fit and well male undergoes an emergency appendicectomy. He is given suxamethonium. An inflamed appendix is removed and the patient is returned to recovery. One hour post operatively the patient develops a tachycardia of 120 bpm and a temperature of 40 ºC. He has generalised muscular rigidity. What is the most likely diagnosis?

A.Acute dystonic reaction

B.Malignant hyperthermia

C.Pelvic abscess

D.Epilepsy

E.Serotonin syndrome

Answer:Malignant hyperthermia

Explanation:

Anaesthetic agents, such as suxamethonium, can cause malignant hyperthermia in patients with a genetic defect. Acute dystonic reaction normally is associated with antipsychotics (haloperidol) and metoclopramide. These lead to marked extrapyramidal effects. Serotonin syndrome is associated with the antidepressants selective serotonin reuptake inhibitors (SSRIs) and selective serotonin/norepinephrine reuptake inhibitors (SSNRIs). This causes a syndrome of agitation, tachycardia, hallucinations and hyper-reflexia.

Question:

A 84-year-old woman admitted for the treatment of a lower respiratory tract infection becomes anuric on the ward for the last 6 hours. Blood tests taken show:

Urea 11mmol/L (baseline 5mmol/L)

Creatinine 156umol/L (baseline 78umol/L)

According to the acute kidney injury (AKI) staging, which stage of AKI is this woman at?

A.Stage 0

B.Stage 1

C.Stage 2

D.Stage 3

E.Stage 4

Answer:Stage 2

Explanation:

There is no stage 0 or stage 4 AKI.

AKI is staged according to the serum creatinine changes, and/or the production of urine.

Stage Creatinine Urine production

1 Increase 1.5-1.9x baseline < 0.5ml/kg/h for >6 consecutive hours

2 Increase 2.0-2.9x baseline < 0.5ml/kg/h for >12 consecutive hours

3 Increase > 3x baseline or >354 µmol/L < 0.3ml/kg/h for > 24h or anuric for 12h

Additionally, a patient is deemed in stage 3 AKI if they are commenced on renal replacement therapy irrespective of creatinine or urine production.

Question:

A patient is given aspirin 300 mg after developing an acute coronary syndrome. What is the mechanism of action of aspirin to achieve an antiplatelet effect?

A.Inhibits the production of thromboxane A2

B.Inhibits ADP binding to its platelet receptor

C.Inhibits the production of prostaglandin H2

D.Glycoprotein IIb/IIIa receptor antagonist

E.Inhibits the production of prostacyclin (PGI2)

Answer:Inhibits the production of thromboxane A2

Explanation:

Question:

A 55-year-old man attends the emergency department with chest pain and shortness of breath. His symptoms have gradually worsened throughout the day. Past medical history includes chronic obstructive pulmonary disease (COPD) and hypertension.

His observations are as follows:

Temperature 37.5ºC

Heart rate 69bpm

Respiratory rate 22 breaths/min

Blood pressure 135/90mmHg

Oxygen saturation 92% on air

A chest x-ray is taken:

© Image used on license from Radiopaedia

What is the next step in the management of this patient?

A.Admission for observation and supplemental oxygen

B.Chest drain

C.Discharge home with repeat chest x-ray in 6 weeks

D.Urgent CT chest

E.Urgent needle decompression

Answer:Chest drain

Explanation:

This patient's chest x-ray (CXR) demonstrates a right-sided pneumothorax. On closer inspection, there is a visible absence of lung markings in the right upper zone. The right lower lung and left lung fields appear unaffected with clear lung markings. When examining a CXR in a patient with a pneumothorax, it is important to look at the trachea as it is an important differentiator between a simple and tension pneumothorax. In this CXR, the trachea is central.

The management of pneumothorax depends on the type of pneumothorax (primary, secondary, iatrogenic or traumatic). This patient has a history of COPD and there is no history of recent surgery or trauma. Therefore, it is likely that he has a secondary pneumothorax. In a patient with a secondary pneumothorax aged >50 years with a rim of air >2cm or clinically short of breath (SOB), a chest drain should be inserted. A pneumothorax can be measured using different techniques with a common method being to measure from the hilar of the lung to the lateral chest wall. This patient is clinically short of breath and therefore a chest drain is the most appropriate management to proceed with.

This patient has an oxygen saturation of 92% on air. This could reflect hypoxia from the pneumothorax or the patient's target saturation of 88-92% given the history of COPD. Admission for supplemental oxygen is indicated for patients with a secondary pneumothorax who have a pneumothorax measuring < 1cm. The size of the pneumothorax on this chest x-ray appears larger than 1 cm and in combination with the clinical history of SOB, inserting a chest drain is more appropriate.

It would be inappropriate to discharge this patient home with a secondary pneumothorax, particularly if the patient is breathless.

A CT chest may be useful to give a clearer picture of the anatomy of the pneumothorax and in this case, identify blebs that may give rise to a pneumothorax, particularly in a patient with COPD. However, this patient is breathless and a CT chest will not change the immediate management of this patient.

Needle decompression is necessary for a tension pneumothorax. Signs of a tension pneumothorax include mediastinal shift and tracheal deviation. A tension pneumothorax is a clinical diagnosis and a CXR should not be carried out for diagnosis. This patient does not show signs of a tension pneumothorax and therefore needle decompression is not indicated.

Question:

Which one of the following statements regarding hepatitis B and pregnancy is correct?

A.Without intervention the vertical transmission rate is around 3%

B.Only at risk groups should be screened for hepatitis B during pregnancy

C.Around 30% of mothers with hepatitis B develop pre-eclampsia

D.It is safe for a mother with hepatitis B to breastfeed her newborn

E.All pregnant women with hepatitis B should take oral ribavirin in the last trimester of pregnancy

Answer:It is safe for a mother with hepatitis B to breastfeed her newborn

Explanation:

Without intervention the vertical transmission rate is around 20%, which increases to 90% if the woman is positive for HBeAg.

Question:

A 45-year-old lady, with a past medical history of rheumatoid arthritis, is scheduled to have a laparoscopic cholecystectomy. What imaging should be performed pre-operatively?

A.Anteroposterior and lateral cervical spine radiographs

B.CT cervical spine

C.Hand radiographs

D.Anteroposterior and lateral cervical spine, plus hand, radiographs

E.Anteroposterior cervical spine radiographs

Answer:Anteroposterior and lateral cervical spine radiographs

Explanation:

Atlantoaxial subluxation is a rare complication of rheumatoid arthritis, but important as it can lead to cervical cord compression. Anteroposterior and lateral cervical spine radiographs preoperatively screen for this complication, ensuring the patient goes to surgery in a C-spine collar and the neck is not hyperextended on intubation.

Radiographs of the hands are useful in diagnosis, but not necessary pre-operatively. CT scanning of the cervical spine is not necessary for screening pre-operatively, but may be useful is any abnormalities are picked up.

Question:

A 12-year-old girl attends the emergency department with her mother following a tonsillectomy 5 days ago. She has noticed some flecks of blood in her saliva every day since the operation and has noticed more streaks today. She feels well in herself otherwise. Her pain has been managed at home with paracetamol and ibuprofen. On examination, there is a small erythematous area in the posterior of the mouth visible with some loss of scabbing over the wound.

What is the most appropriate management of this patient?

A.Analgesia and discharge with safety netting to return if bleeding recurs

B.Cauterise with silver nitrate sticks and safety net to return if bleeding recurs

C.Prescribe oral antibiotics and discharge with GP review in 5 days

D.Refer to ENT and consider antibiotic prescription

E.Refer to anaesthetics for airway protection

Answer:Refer to ENT and consider antibiotic prescription

Explanation:

Haemorrhage 5-10 days after tonsillectomy is commonly associated with a wound infection and should therefore be treated with antibiotics

Important for meLess important

Refer to ENT and consider antibiotic prescription is the correct answer. Secondary haemorrhages are classified if there is bleeding after 24 hours. Typically secondary haemorrhages after 5-10 days are due to post-operative infection and the most common time for secondary haemorrhage is around 6 days. Commonly, co-amoxiclav is used in the management of post-operative infection. The patient should be reviewed by the ENT team as they may require admission.

Analgesia and discharge with safety netting to return if bleeding recurs is an incorrect answer as the secondary haemorrhage is likely to infection and should be managed with antibiotics. Furthermore, the patient requires review from the ENT team due to the potential requirement for clot removal (if present on the fossa) to reduce further risk of infection.

Cauterise with silver nitrate sticks and safety net to return if bleeding recurs is an inappropriate answer as there is no significant active bleed site. Furthermore, silver nitrate sticks in the control of post-tonsillectomy bleeding should only be used by ENT specialists or those with specialist training. This is due to the risk of cauterising the larynx via direct contact with the silver nitrate stick or from run-down.

Prescribe oral antibiotics and discharge with GP review in 5 days is inappropriate as the patient requires an ENT review. This is due to the possibility of clot removal requirement and consideration of admission for observation.

Refer to anaesthetics for airway protection is an incorrect answer as the patient is currently stable. If they were to deteriorate or there was active bleeding ongoing, it would be appropriate to get an urgent anaesthetics and ENT review via fast bleeping the respective teams.

Question:

A 31-year-old man presents to the Emergency Department with a painful red eye associated with blurring of his vision. On further questioning, he discloses that he also has multiple painful ulcers in his mouth and genitals. Although the patient is sexually active, he admits to rarely using barrier contraception; regular sexually transmitted infection screens have been negative.

What is the most likely diagnosis?

A.Behcet's disease

B.Chancroid

C.Herpes simplex virus

D.Reiter's syndrome

E.Syphilis

Answer:Behcet's disease

Explanation:

Oral ulcers + genital ulcers + anterior uveitis = Behcet's

Important for meLess important

A painful, red eye with blurred vision is consistent with anterior uveitis. This, in combination with painful oral and genital ulcers, forms the triad indicative of Behcet's disease. Behcet's is a multi-system vasculitis typically affecting men more than women in their 20s and 30s. The sexual history here is a red herring, although it should always be considered as a cause for genital ulcers.

Chancroid is a bacterial sexually transmitted infection causing necrotising genital ulcers; uveitis would not be seen.

HSV is a cause of painful ulcers and rarely can cause hypertensive uveitis. However, this would be incredibly uncommon; this triad is more suggestive of Behcet's.

Reiter's syndrome (also known as reactive arthritis) is conjunctivitis, urethritis and oligoarthritis. Ulcers and uveitis are not a feature.

Primary syphilis causes a single chancre: a painless ulcer. If untreated, secondary syphilis can cause multiple painless ulcers with non-specific systemic features but rarely uveitis. The key feature in this vignette is that the ulcers are painful.

Question:

A 28-year-old woman presents to the GP with a neck mass. She denies any swallowing difficulty or pain. She has no past medical history and takes no medications. Her family history is significant for type 2 diabetes mellitus.

Physical examination reveals a palpable and firm nodule on the left side of her thyroid. Blood tests are done, which show the following:

TSH 1.5 mIU/L (0.5-5)

Which of the following investigations should be performed next?

A.CT scan

B.Chest x-ray

C.Fine needle aspiration

D.Thyroid nuclear medicine scan

E.Ultrasonography

Answer:Ultrasonography

Explanation:

Ultrasonography is the first-line imaging of choice when investigating thyroid nodules

Important for meLess important

Ultrasonography is the first-line imaging of choice when investigating thyroid nodules. It can detect lesions as small as 2 mm and provides information on their dimensions, shape, and parenchymal changes. Sonographic criteria are used to classify thyroid nodules, ranging from U1 (benign) to U5 (malignant), which helps to determine the need for further investigations.

A chest x-ray is usually performed in people who have been diagnosed with thyroid cancer (especially follicular thyroid cancer) to check the spread of cancer to the lungs.

A CT scan can be used to determine the location and size of thyroid cancers and their spread to the nearby areas, but would not be the appropriate next step in this patient in whom the nature of the thyroid nodule has yet to be determined.

Fine needle aspiration would only be performed in selected patients if ultrasonography reveals features that might suggest malignancy (usually U3 to U5).

Thyroid nuclear medicine scans are used in a number of settings, such as in differentiating between causes of thyrotoxicosis or identifying any spread of thyroid cancer. It would not be the appropriate next step investigation in a patient with a clinically diagnosed thyroid nodule.

Question:

A woman who is 24 weeks pregnant presents with a rash:

© Image used on license from DermNet NZ

What is the most likely diagnosis?

A.Pityriasis rosea

B.Pompholyx

C.Primary herpes simplex infection

D.Polymorphic eruption of pregnancy

E.Pemphigoid gestationis

Answer:Pemphigoid gestationis

Explanation:

The blistering lesions are clearly visible on this image.

Question:

A 64-year-old man attends his GP for an annual health check. He was found to be hypertensive and his GP started ramipril 2.5mg OD. His other medications include lansoprazole 30mg OD, furosemide 20mg OD and atorvastatin 40mg ON.

His U+E have generally been stable and a blood test showed:

Na+ 139 mmol/L (135 - 145)

K+ 4.8 mmol/L (3.5 - 5.0)

Urea 7.5 mmol/L (2.0 - 7.0)

Creatinine 140 µmol/L (55 - 120)

eGFR 47 ml/min/1.73m2

One month later the GP requests repeat U+Es:

Na+ 139 mmol/L (135 - 145)

K+ 6.1 mmol/L (3.5 - 5.0)

Urea 8.5 mmol/L (2.0 - 7.0)

Creatinine 150 µmol/L (55 - 120)

eGFR 43 ml/min/1.73m2

An ECG is normal.

Which of the following represents the most appropriate management plan, in addition to re-checking the U+E's?

A.Initiate calcium resonium therapy

B.Stop ramipril and restart at a lower dose

C.Swap ramipril for another anti-hypertensive

D.Increase dose of furosemide

E.Advise on a low potassium diet

Answer:Swap ramipril for another anti-hypertensive

Explanation:

A potassium above 6mmol/L should prompt cessation of ACE inhibitors in a patient with CKD (once other agents that promote hyperkalemia have been stopped)

Important for meLess important

NICE Clinical Guideline 182 - in patients with CKD, potassium above 6mmol/L should prompt cessation of ACE inhibitors in a patient with CKD (once other agents that promote hyperkalemia have been stopped).

In this case, there is no other medicine that can be stopped first in an attempt to bring down the potassium. All the other options would decrease serum potassium, but would not conform to the NICE guidelines in this situation.

Question:

An 18-year-old student presents to your GP practice after presenting to you a week ago with a supraclavicular neck lump. The last consultation reads that she had also been feeling unwell with night sweats and loss of appetite. On examination, the neck lump was rubbery and non-tender.

A biopsy has been taken and she has come for the results. The report shows cells with a 'mirror image nuclei'.

What is the most likely diagnosis?

A.Non-Hodgkin's lymphoma

B.Hodgkin's lymphoma

C.Epstein- Barr virus

D.Thyroid adenoma

E.Tuberculosis

Answer:Hodgkin's lymphoma

Explanation:

Mirror image nuclei = Reed-Sternberg cells

Reed-Sternberg cells are diagnostic of Hodgkin's lymphoma.

Patients present with large, non-tender, rubbery lymph nodes. Around 25% will have constitutional upset with fever, night sweats, weight loss, lethargy and pruritus.

Question:

A 32-year-old man is admitted following a head injury sustained after falling from a horse. A CT head is performed which shows a large extra-dural haematoma causing midline shift and signs of cerebral oedema. He has a reduced GCS with abnormal posturing.

Which vital signs would be consistent with this presentation?

A.Bradycardia and hypertension with a low pulse pressure

B.Bradycardia and hypertension with a wide pulse pressure

C.Tachycardia and hypotension with a low pulse pressure

D.Tachycardia and hypotension with a wide pulse pressure

E.Tachycardia with a normal blood pressure

Answer:Bradycardia and hypertension with a wide pulse pressure

Explanation:

The Cushing reflex is a physiological nervous system response to increased intracranial pressure (ICP) that results in hypertension and bradycardia

Important for meLess important

Bradycardia and hypertension with a wide pulse pressure is the correct answer. Cushing's triad, compromised of widening pulse pressure, bradycardia and irregular breathing, is a late sign indicating impending brain herniation. Systolic hypertension occurs as a reflex to maintain cerebral perfusion pressure in the presence of raised intracranial pressure.

Bradycardia and hypertension with a low pulse pressure is incorrect. Raised intracranial pressure causes systolic hypertension and hence a wide pulse pressure.

Tachycardia and hypotension with a wide pulse pressure is incorrect. Although potentially concerning for other pathologies, it is not suggestive of raised intracranial pressure. As explained above, the physiological response is to increase blood pressure to maintain cerebral perfusion.

Tachycardia with normal blood pressure is incorrect. Tachycardia and hypertension in the context of a head injury may be an early sign of raised intracranial pressure, however, is less concerning with normal blood pressure.

Tachycardia and hypotension with a low pulse pressure is incorrect. Again, this is potentially concerning for other pathologies such as shock, however as explained above, it is not suggestive of raised intracranial pressure.

Question:

Tommy is a 23-year-old carpenter who has come to the GP with tenderness in his left cheek that is worse when leaning forward. It has been going on for over a month. In the last week he has been getting a runny left nostril almost every day, constantly feels as though it is 'blocked up' and needs to breathe through his mouth to feel as though he is getting enough oxygen. He is otherwise fit and well and is on no medication. The GP makes an urgent referral to hospital.

Which feature in Tommy's history is the most concerning?

A.Age

B.Duration of obstructive symptoms

C.Exacerbation on leaning forward

D.Mouth breathing

E.Unilateral nature

Answer:Unilateral nature

Explanation:

Unilateral symptoms are a red flag for patients with chronic rhinosinusitis

Important for meLess important

The correct answer is the unilateral nature of the presentation, this is because more sinister pathology, such as cancer of the nasopharynx, is likely to produce one-sided symptoms, depending on its location. Inflammatory processes and the like usually affect the sinuses on both sides.

As Tommy is relatively young, his age is not a red flag.

The duration of obstructive symptoms (runny nose, blocked up etc.) would be concerning if they had been present for more than 3 weeks. Tommy has only been experiencing them for only a week ('In the last week he has been getting a runny left nostril.....'), therefore it is not a reason for referral.

Pain worse on leaning forward is classic sign of sinusitis and in the majority of case would not be worrying but more of a diagnostic clue.

Mouth breathing is just a result of the obstructive symptoms as Tommy is unable to breath through his nose. If this persisted it would warrant further investigation.

Question:

A 35-year-old man is brought into the emergency department after being assaulted and robbed 1 hour ago. He states he was struck on his head and upper body with a crowbar before being knocked unconscious. He has nausea, right-sided headache, and severe right forearm pain with deformity but denies chest and abdominal pain. He has a history of diabetes mellitus and dyslipidemia.

His blood pressure is 168/88 mmHg, heart rate 55 beats/min and respiratory rate 14 breaths/min. During the examination, the patient becomes obtunded.

What finding is most likely to be seen in this patient?

A.Increased jugular venous pressure (JVP)

B.Lower limb fasciculations

C.Nuchal rigidity

D.Petechial rash overlying anterior chest wall

E.Unilateral pupillary dilatation

Answer:Unilateral pupillary dilatation

Explanation:

Raised ICP can cause a third nerve palsy due to herniation

Important for meLess important

This patient likely has an epidural haematoma that has caused transtentorial herniation. This is evidenced by the history of head trauma, a lucid interval, signs of increased intracranial pressure and a resultant decrease in consciousness resulting in obtundation. Increased pressure within the cranium secondary to the rapid expansion of intracranial haematoma can cause the temporal lobe to herniate through the tentorial notch. This herniation can compress the ipsilateral third cranial nerve, resulting in a dilated pupil, ptosis and 'down and out' eye deviation.

Increased JVP occurs in conditions such as cardiac tamponade and tension pneumothorax. Considering that this patient does not have chest pain or signs of obstructive shock (tachycardia, hypotension), this is unlikely.

Lower limb fasciculations occur due to lower motor neuron damage and can be seen in conditions that damage lower motor neurons (eg. amyotrophic lateral sclerosis). This patient has transtentorial cerebral herniation secondary to epidural haematoma and would thus have upper motor neuron signs (hemiparesis, hypertonicity, hyperreflexia).

Nuchal rigidity does not occur with transtentorial herniation. Neurological conditions that cause nuchal rigidity include meningitis and subarachnoid haemorrhage.

A petechial rash overlying the chest is a possible symptom of fat embolism syndrome and is not associated with transtentorial herniation. Fat embolism syndrome can occur 24 hours after fracture of a large bone containing marrow/fat and is associated with organ compromise due to the release of fat into the vascular system such as neurological dysfunction, respiratory injury and petechial rash. The timing of this patient's neurological deterioration, lack of respiratory distress, small bone fracture (forearm) as well as other symptoms make this diagnosis unlikely.

Question:

A 4-year-old boy presents to his GP with a new-onset fever, red tongue, and widespread rash that appeared first on his torso but has not spread to the soles of his feet. His mother describes the rash as a rough 'sandpaper' texture. Oral antibiotics are prescribed for the following ten days.

The patient regularly attends his nursery on weekdays however, his mother is concerned and questions when he may return.

When is the most appropriate time for the patient to return to school?

A.24 hours after commencing antibiotics

B.4 days from the onset of the rash

C.48 hours after commencing antibiotics

D.5 days from the onset of the rash

E.Until symptoms have settled for 48 hours

Answer:24 hours after commencing antibiotics

Explanation:

A child with scarlet fever can return to school 24 hours after commencing antibiotics

Important for meLess important

The correct answer is to return to school 24 hours after commencing antibiotics as these are the guidelines in place for a new diagnosis of scarlet fever.

4 days from the onset of the rash is the incorrect answer as this would be appropriate for those with measles.

48 hours after commencing antibiotics is the incorrect answer as this would be most appropriate for children with whooping cough.

5 days from the onset of the rash is most appropriate for a rubella infection and not scarlet fever.

Until symptoms have settled for 48 hours would be inappropriate to advise in this case as this would be recommended for children with diarrhoea and vomiting.

Question:

A 23-year-old Afro-Caribbean woman attends the surgery, and reports feeling 'tired all the time'.

She has also been suffering from joint pains and stiffness in both hands and feet, worse on waking in the morning. She has also noticed a new rash on both cheeks.

On examination, her observations are normal, and no abnormalities affecting the respiratory, cardiovascular, or gastrointestinal systems. There is no joint swelling, but there is mild tenderness of the metacarpo-phalangeal joints both hands and metatarso-phalangeal joints of both feet. She does have a mildly erythematous papular rash on both cheeks.

You arrange a set of blood tests for her, suspecting a diagnosis of systemic lupus erythematosus (SLE).

Which of the following blood tests would be most helpful in helping to exclude this condition?

A.Anti-mitochondrial antibody (AMA)

B.Anti-nuclear antibody (ANA)

C.Anti-nuclear cytoplasmic antibody (ANCA)

D.Anti-phospholipid antibody (APLA)

E.Rheumatoid factor (RhF)

Answer:Anti-nuclear antibody (ANA)

Explanation:

Over 99% of patients with SLE are ANA positive, therefore it is a useful rule out test

Important for meLess important

ANA is a useful 'screening test' for SLE. The vast majority of patients with SLE (99%) will be ANA-positive; therefore a negative test is very useful in helping to exclude SLE from the differential diagnosis.

ANCA is commonly detected in various forms of vasculitis, including polyarteritis nodosa and Churg-Strauss disease.

Rheumatoid factor is usually detected in rheumatoid arthritis. However, it can also be detected in numerous other autoimmune conditions, making it a very non-specific test.

APLA is detected in anti-phospholipid syndrome', a condition that predisposes to venous and arterial thrombosis. (Confusingly, one type of APLA is called 'lupus anticoagulant'.)

AMA is usually detected in primary biliary cholangitis, an autoimmune condition affecting the liver and predisposing to cirrhosis.

Question:

A 1-month-old baby suffers from intermittent episodes of cyanosis and tachypnoea, particularly when distressed. An examination reveals a harsh ejection-systolic murmur.

Given the likely diagnosis, what is the best predictor of the clinical severity of this condition?

A.The degree of aortic stenosis

B.The degree of left ventricular hypertrophy

C.The degree of pulmonary stenosis

D.The degree of right ventricular hypertrophy

E.The size of the ventricular septal defect

Answer:The degree of pulmonary stenosis

Explanation:

Tetralogy of Fallot: the severity of the right ventricular outflow tract obstruction (pulmonary stenosis) determines the degree of cyanosis and clinical severity

Important for meLess important

The degree of pulmonary stenosis is correct. The presence of intermittent cyanotic episodes and tachypnoea associated with distress and the presence of a harsh ejection-systolic murmur should raise suspicion of tetralogy of Fallot (TOF), a congenital heart defect which often presents at around 1-2 months of age. TOF is characterised by four defects:

Ventricular septal defect (VSD)

Right ventricular hypertrophy

Right ventricular outflow tract obstruction (pulmonary stenosis)

Overriding aorta

The degree of right ventricular outflow tract obstruction (i.e. the degree of pulmonary stenosis) determines the degree of cyanosis and clinical severity as cyanosis occurs if right ventricular outflow obstruction forces blood returning to the right side of the heart to be shunted to the left across the ventricular septal defect out to the systemic circulation. More obstruction (i.e. more severe pulmonary stenosis) leads to more shunting and worse clinical signs and symptoms, including cyanosis.

The degree of aortic stenosis is incorrect as aortic stenosis is not a feature in TOF.

The degree of left ventricular hypertrophy is incorrect as left ventricular hypertrophy is not a feature in TOF.

The degree of right ventricular hypertrophy is incorrect as right ventricular hypertrophy develops secondary to right ventricular outflow obstruction (pulmonary stenosis) and so, is not the primary predictor of severity.

The size of the ventricular septal defect is incorrect. The flow of the blood through the ventricular septal defect occurs secondary to right ventricular outflow obstruction (pulmonary stenosis) and so, is not the primary predictor of severity. More severe pulmonary stenosis leads to more shunting through the ventricular septal defect.

Question:

A 78-year-old gentleman has been unable to pass urine for the last 5 hours. He is extremely uncomfortable. You insert a catheter, which drains 1 litre of urine. The patient feels much better after this. You perform a PR examination and find an enlarged, hard nodular feeling prostate. The Urology Registrar recommends to admit the patient and observe for 24 hours; he warns that following an episode of acute urinary retention a complication may occur. Which test is most important to (re)check in the next 12 hours to help identify such a complication?

A.PSA

B.Serum creatinine

C.Urine calcium

D.Serum calcium

E.Protein electrophoresis

Answer:Serum creatinine

Explanation:

This gentleman has had an episode of acute urinary retention. The PR examination findings suggest that this is secondary to prostate enlargement (likely of malignant nature).

Acute kidney injury can result from acute urinary retention (a post-renal cause) therefore the most appropriate investigation would be to check the serum creatinine. It will be important to monitor fluid balance carefully during the next 48 hours: some patients develop a post-obstructive diuresis after insertion of the catheter.

The PSA could be falsely elevated following insertion of catheter.

Question:

You are reviewing the fluid balance chart of a patient and notice the overall value is -1250 ml over the past 24 hours.

Given this, which of the following symptoms will most likely be observed?

A.Tachypnoea

B.Tachycardia

C.Elevated jugular venous pressure

D.Chest crackles

E.Ascites

Answer:Tachycardia

Explanation:

Tachycardia is an indicator of an under-filled fluid balance

Important for meLess important

Tachycardia is the only symptom on the list above that would present in patients with a negative fluid balance. Other symptoms that the patient may present with are:

Hypotension

Oliguria

Sunken eyes and reduced skin turgor

Ascites, crackles, tachypnoea and elevated JVP are all signs of an over-filled fluid balance.

Question:

Patricia, a 62-year-old female, presents to the general practice clinic complaining of a gradual 3-week onset of feeling generally unwell, lethargic, nauseated, and yellow-green tinted vision.

Her past medical history includes asthma, atrial fibrillation, hypercholesterolaemia, and recently diagnosed hypertension. Patricia's medications include a salbutamol inhaler as required, digoxin, atorvastatin, and verapamil.

On examination you note that Patricia appears lethargic although alert and conscious, however she is haemodynamically stable. Her blood pressure is 160/110mmHg, pulse 50/min, respiratory rate 16/min, oxygen saturation 99% on room air, and she is afebrile 37ºC.

Which of the following is the next best step?

A.Temporarily cease digoxin, measure digoxin concentration within 4 hours of the last dose and review

B.Temporarily cease digoxin, measure digoxin concentration within 8-12 hours of the last dose and review

C.Refer to hospital for immediate DC cardioversion

D.Cease verapamil immediately

E.Increase Patricia's dose of digoxin

Answer:Temporarily cease digoxin, measure digoxin concentration within 8-12 hours of the last dose and review

Explanation:

If toxicity is suspected, digoxin concentrations should be measured within 8 to 12 hours of the last dose

Important for meLess important

In this case, Patricia's symptoms suggest digoxin toxicity. It is likely that this has been precipitated by her recent diagnosis of hypertension and the prescription of verapamil. If digoxin toxicity is suspected, digoxin concentrations should be measured within 8-12 hours of the last dose to assess for the plasma concentration.

Measuring digoxin concentration after 4-hours of the last dose is too soon to identify toxicity levels.

While verapamil is potentially the cause which precipitated the digoxin toxicity, it is not suitable to cease the medication immediately given her hypertension.

Referral to hospital for immediate DC cardioversion would not be indicated given her conscious state and haemodynamic stability at this time.

Increasing her dose of digoxin is not indicated, given there is no reason to suggest low digoxin levels are the cause of her symptoms. If digoxin toxicity is confirmed, an appropriate medication would be digibind, the digoxin antidote.

Question:

A 28-year-old woman, who is known to cardiology services, attends cardiology clinic for a regular follow-up.

An ECG is taken as part of this review which can be seen below.

© Image used on license from Dr Smith, University of Minnesota

What is the most likely underlying cause of this woman's abnormal ECG?

A.Atrial pacing

B.Constrictive pericarditis

C.Hypertrophic obstructive cardiomyopathy

D.Isolated left ventricular hypertrophy

E.Ventricular pacing

Answer:Hypertrophic obstructive cardiomyopathy

Explanation:

This patient has hypertrophic obstructive cardiomyopathy (HOCM) and this is a classic (albeit extreme) ECG trace for HOCM. It's always helpful to have a system for interpreting ECGs. A commonly used approach is to read the ECG components in the following order: rate, rhythm, axis, P waves, PR interval, QRS complex, ST segment, and T waves.

This ECG has a rate of approximately 100bpm (3 large squares between each QRS), is in sinus rhythm (regular p-waves preceding each QRS), and has a normal axis. Next, look at the p-waves: they are present and regular but note the 'm-shaped' or bifid p-waves in multiple leads which likely represent left atrial enlargement. PR interval is ~120-160ms (normal). Most striking in this ECG are the extremely high-voltage QRS complexes which represent extreme left ventricular hypertrophy (LVH). Further, note the very high-voltage R-waves in the precordial leads (V1-V6) which suggest septal hypertrophy. Finally, there is ST depression in the precordial leads and T-wave inversion in the anterolateral leads (I/avL/V2-V6) which may represent ischaemia secondary to LVH.

Putting all of this together, we have suspected left atrial hypertrophy and severe LVH, alongside features of septal hypertrophy and possible anterolateral ischaemia. Out of the options given, HOCM best fits these changes.

Atrial pacing isn't shown in this ECG. Atrial pacing is commonly used in patients with sinus node dysfunction (note that it can only be used if AV conduction is intact). In atrial pacing, the ECG would show pacing spikes preceding some or all p-waves.

Constrictive pericarditis is incorrect. Pericarditis, or inflammation of the pericardium, may produce changes consistent with pericardial effusion, such as low QRS voltages or electrical alternans (consecutive QRS complexes will alternate in height as the heart swings in a pendulous motion due to the fluid-filled pericardium), or widespread ST changes - characteristically described as 'saddle-shaped ST-elevation' - due to involvement of the epicardium. None of these features are present in this ECG.

Isolated left ventricular hypertrophy (LVH) is incorrect. While LVH is shown in this ECG, characterised by the massive QRS voltages, there are other abnormal features such as septal hypertrophy and possible left atrial enlargement.

Ventricular pacing isn't shown in this ECG. A ventricular-paced strip will show a pacing spike preceding some or all QRS complexes. The high-voltage QRS complexes here should not be confused with pacing spikes which would be far thinner and would precede as opposed to engulfing the QRS complex.

Question:

A 76-year-old man was recently diagnosed with atrial fibrillation after an irregular pulse was detected during his annual hypertension review. He has no bleeding risk factors, no other co-morbidities, and a CHA2DS2VASc score of 3. He is counselled and agrees to start medication for stroke prevention.

Which of these medications is a first-line treatment for stroke prevention?

A.Aspirin

B.Clopidogrel

C.Edoxaban

D.Ticagrelor

E.Warfarin

Answer:Edoxaban

Explanation:

DOACs should be offered first-line for reducing stroke risk in AF

Important for meLess important

Offer anticoagulation with a direct-acting oral anticoagulant (DOAC) to people with atrial fibrillation and a CHA2DS2VASc score of 2 or above such as apixaban, dabigatran, edoxaban, or rivaroxaban. In a primary care setting, you would assess the person's stroke risk using the CHA2DS2VASc assessment tool as mentioned in this question. You then need to assess the risk of bleeding and aim to reduce any current risk factors such as uncontrolled hypertension, concurrent medication, harmful alcohol consumption and reversible causes of anaemia.

Warfarin would be second-line if DOACs are contraindicated, not tolerated, or not suitable. DOACs are the first choice as they have a quick onset of action, do not require monitoring and have fewer drug interactions. Warfarin would be preferred if this patient had liver dysfunction or significant renal impairment.

Aspirin, clopidogrel and ticagrelor are all antiplatelets that decrease platelet aggregation and inhibit thrombus formation in the arterial circulation. These drugs are not licensed for stroke prevention in atrial fibrillation when used alone. Dual antiplatelet therapy of aspirin and clopidogrel may be suitable for people who are unable or unwilling to take anticoagulants.

Question:

Which one of the following is least recognised in patients with Meniere's disease

A.Aural fullness

B.Symptoms triggered by sudden change in head position

C.Sensorineural hearing loss

D.Tinnitus

E.Nystagmus

Answer:Symptoms triggered by sudden change in head position

Explanation:

Question:

A 62-year-old male presents to GP with a 6-month history of weight loss and progressive jaundice. He has been drinking 50-60 units of alcohol a week for the past 10 years. He does not report any change in bowel motions nor does he report any blood in the stool. He denies any drug abuse.

On examination, he appears cachectic and has a distended abdomen with shifting dullness.

You order an urgent ultrasound and order some blood tests. The ultrasound is reported as abnormal.

Which of the following blood tests would be most useful to aid diagnosis?

A.Prothrombin time (PTT)

B.Carcinoembryonic antigen (CEA)

C.Alpha-fetoprotein (AFP)

D.CA 19 - 9

E.Alanine transaminase (ALT)

Answer:Alpha-fetoprotein (AFP)

Explanation:

Raised AFP can be a useful diagnostic marker for HCC

Important for meLess important

In a patient with a long history of alcohol abuse and weight loss at the age of 62, the most important diagnosis to establish or rule out is Hepatocellular carcinoma (HCC). AFP is regularly used alongside ultrasound as a first line investigation. Although not that sensitive an AFP level above 400 micrograms / L has 95% specificity.

Liver function tests (including ALT) and PTT are also likely to be ordered but have less importance in the diagnosis of malignancy as they are both likely to be raised in any liver disease.

CEA is used mostly as a marker for bowel cancer, CA 19 - 9 is used mostly as a marker for pancreatic cancer.

Question:

You are fast-bleeped to the respiratory ward to review a 70-year-old man with known chronic obstructive pulmonary disease (COPD) who has become 'unresponsive'. On arrival you note the following:

Airway

oropharyngeal airway already in-situ

Breathing

respiratory rate 6/min

oxygen saturations 99% on 15 l/min oxygen

Circulation

heart rate 96/min

blood pressure 88/60 mmHg

Another doctor has already taken arterial blood gases (on 15 l/min oxygen):

pH 7.15

pCO2 14.5 kPa

pO2 17.1 kPa

Bicarbonate 34.5 mmol/l

Base excess +10.6 mmol/l

What do the arterial blood gases show?

A.Mixed respiratory and metabolic acidosis

B.Acute-on-chronic respiratory acidosis with a partial metabolic compensation

C.Acute respiratory alkalosis with partial metabolic compensation

D.Acute respiratory acidosis without metabolic compensation

E.Acute respiratory acidosis with a partial metabolic compensation

Answer:Acute-on-chronic respiratory acidosis with a partial metabolic compensation

Explanation:

The cause of the acute deterioration is currently unknown but may of course be related to a reduction in his hypoxic drive secondary to the oxygen flow rate being too high. This may have led to him developing type 2 respiratory failure, as many patients with COPD are at risk of.

The high bicarbonate suggests a background of chronic respiratory acidosis. The metabolic compensation is not full as his pH is abnormal.

Question:

A man brings his 18-month-old daughter to your GP clinic. She has had coryzal symptoms for the last 2 days. Last night, she started with a barking cough and a mild temperature of 37.8º.

On examination, there is mild stridor when mobilising, with no recessions visible. Chest sounds clear with good air entry bilaterally. The temperature today remains at 37.8º, but all other observations are normal.

What is the most appropriate management?

A.Admit to hospital

B.Give nebulised adrenaline

C.Give a stat dose of dexamethasone 150 micrograms/kg PO

D.Give a salbutamol inhaler

E.Start antibiotics

Answer:Give a stat dose of dexamethasone 150 micrograms/kg PO

Explanation:

Croup - A single dose of oral dexamethasone (0.15 mg/kg) is to be taken immediately regardless of severity

Important for meLess important

This is a child who has croup. This is an illness that usually starts with coryzal symptoms, and the child then develops a seal like, barking cough.

The first stage is to work out how serious a case of croup this child has. Generally recommendations include:

Mild croup:

Occasional barking cough with no stridor at rest

No or mild recessions

Well looking child

Moderate croup:

Frequent barking cough and stridor at rest

Recessions at rest

No distress

Severe croup:

Prominent inspiratory stridor at rest

Marked recessions

Distress, agitation or lethargy

Tachycardia

In this case, the child would have mild croup.

Admission to hospital is only considered for moderate or severe croup, or if an alternative severe diagnosis like epiglottitis is suspected. It would not be appropriate in this case.

Nebulised adrenaline would only be used for children who were distressed, or who had a severe stridor. It would be not be used in this case as this child is well at rest with only a mild stridor on movement.

A salbutamol inhaler would only help if the child had wheeze, which she does not in this case. It would not give her any benefit.

Antibiotics are not indicated in croup as it is a viral illness.

Systematic reviews have shown that steroids can ease symptoms within a few hours. They also lead to fewer reattendances and fewer hospital admissions. Mild croup will resolve on its own, but Dexamethasone has been shown to be of some benefit.

References: NICE Clinical Knowledge Summaries croup

Question:

A 30-year-old woman is admitted to hospital with visual disturbance in her right eye. Her vision has gone blurry to the point that she can't read the Snellen chart but she can tell how many fingers you are holding up. She also experiences pain in that eye that comes on with movement. Her left eye is completely normal. She remembers that last year she developed some paresthesia in her left foot that resolved after a few weeks. She did not seek medical advice at the time.

Given the likely diagnosis, what are you most likely to find in her CSF sample?

A.High protein

B.Glucose <2/3 of serum

C.Oligoclonal bands

D.Elevated neutrophils

E.Xanthochromia

Answer:Oligoclonal bands

Explanation:

Oligoclonal bodiesare found in the CSF of patients with MS

Important for meLess important

Her symptoms are indicative of optic neuritis, the most common initial presentation of multiple sclerosis, MS. Sudden onset of unilateral, blurred vision with pain on movement of that eye are common symptoms.

The CSF of MS patients have normal cell counts and protein levels. Lower glucose is seen in cases of bacterial meningitis, not MS. Xanthochromia is used in the diagnosis of a subarachnoid haemorrhage.

Oligoclonal bands are found in the CSF of 80% of MS patients. Elevated IgG levels is another common finding.

Question:

A 49-year-old gentleman presents to the emergency department overnight with abdominal pain. He is pacing his cubicle in pain, reports 10/10 pain originating on the right hand side of his back which moves around to his right testicle. He has vomited normal gastric contents once but has no other symptoms. His observations are normal apart from a heart rate of 100bpm. Urine dip shows ++ blood. He is given PR diclofenac and oramorph for pain. The next morning his pain is controlled and the tachycardia has settled, and he undergoes a CTKUB. This shows no stones in the ureters, however, there is 'stranding' of the peri-ureteric fat. There is no sign of bowel or other abdominal organ pathology. What is the correct diagnosis?

A.Urothelial carcinoma of the ureter

B.Malingering (opiate seeking)

C.Pyelonephritis

D.Ureteric rupture

E.Spontaneously passed ureteric calculus

Answer:Spontaneously passed ureteric calculus

Explanation:

Periureteric fat stranding may indicate recent stone passage, if a ureteric calculus is not present.

Important for meLess important

Most stones will pass spontaneously (those <5mm in the ureteric axis). Fat stranding can occur beside the ureter, indicating recent stone passage or beside the kidney, which can be a sign of pyelonephritis. Urothelial carcinoma tends to present with a chronically obstructed and hydronephrotic kidney, and may have been seen on CTKUB if present (although an excretory phase contrast CT would be needed to properly investigate this). the patient does not have a history or signs consistent with pyelonephritis. Malingering would not explain the haematuria or the radiological findings. Ureteric rupture is rare and is most often iatrogenic, the CTKUB would be expected to show a urinoma in the retroperitoneal space.

Question:

An 8-year-old boy attends the emergency department with his mother. She is concerned that he has not been eating for the last 24 hours due to abdominal pain. He denies vomiting and diarrhoea and there is no history of recent illness. He is usually a healthy child with no past medical history of note.

His observations are as follows:

Temperature 38.1ºC

Heart rate 155bpm

Blood pressure 110/60mmHg

Respiratory rate 25 breaths/min

Oxygen saturations 99% on air

On examination, he appears pale with cool peripheries. Chest sounds are clear and heart sounds are normal. There is central guarding on abdominal palpation with no obvious organomegaly.

Urinalysis: + leucocytes.

What is the most likely diagnosis?

A.Appendicitis

B.Constipation

C.Meckel's diverticulum

D.Mesenteric adenitis

E.Pyelonephritis

Answer:Appendicitis

Explanation:

Anorexia is a common feature of appendicitis

Important for meLess important

This boy has a diagnosis of acute appendicitis. Appendicitis in children is often a clinical diagnosis of sudden onset central abdominal pain that later radiates to the right iliac fossa. However, other symptoms may be more significant in other patients including diarrhoea, vomiting or anorexia. The presence of fever, central guarding, and leucocytes in the urine suggests an infective cause of this child's symptoms. In a child with such features in addition to anorexia, it is important to rule out appendicitis as a diagnosis.

Constipation is relatively common in young children. However, constipation does not cause anorexia or guarding on examination. Furthermore, the presence of fever and leucocytes in the urine suggest an infective process, further ruling out constipation as a diagnosis.

Meckel's diverticulum is a gastrointestinal malformation resulting in an outpouching of small bowel present in approximately 2% of the population (rule of 2s: 2% of population, 2 inches long, 2 feet from ileocaecal valve, 2% become symptomatic). The most common presenting symptoms include rectal bleeding and abdominal pain. The absence of rectal bleeding along with fever and anorexia make Meckel's diverticulum less likely.

Mesenteric adenitis is the inflammation of the abdominal lymph nodes secondary to a viral infection. It is a common cause of abdominal pain in children under 16 years. However, the lack of a previous viral infection makes mesenteric adenitis less likely.

Pyelonephritis is a reasonable differential diagnosis in this patient given the history of fever, abdominal pain, and leucocytes in the urine. However, the presence of leucocytes in the urine is not necessarily specific for a urinary tract infection and can represent other sources of infection. Typically pyelonephritis presents with flank pain radiating to the suprapubic region with a combination of lower urinary tract symptoms (e.g. dysuria or increased frequency). Furthermore, urinalysis may also show the presence of blood, protein, or nitrites. The absence of these makes the diagnosis of pyelonephritis less likely.

Question:

A 47-year-old woman is seen in the Nephrology clinic as part of her follow-up for end-stage renal failure secondary to autosomal dominant polycystic kidney disease. She has hypertension, for which she is taking ramipril, but is otherwise relatively well. As such, she is offered the option of a renal transplant.

What malignancy is she most likely to develop if she does proceed to transplantation?

A.Basal cell carcinoma of the skin

B.Malignant melanoma

C.Post-transplant lymphoproliferative disorder (PTLD)

D.Renal cell carcinoma

E.Squamous cell carcinoma of the skin

Answer:Squamous cell carcinoma of the skin

Explanation:

Renal transplant patients - skin cancer (particularly squamous cell) is the most common malignancy secondary to immunosuppression

Important for meLess important

The correct answer is squamous cell carcinoma of the skin. All patients who undergo a renal transplant are at an increased risk of a number of malignancies, due to T-cell ablating immunosuppression, which inhibits the immune system's normal ability to recognise and kill neoplastic cells. Of these, the most common cancer after a renal transplant is squamous cell skin cancer, which is approximately 250 times more common in renal transplant patients than in the general population.

Malignant melanoma is incorrect. Although renal transplant patients have an increased likelihood of developing malignant melanoma compared to the general population, neither the incidence ratio nor the absolute probability of developing malignant melanoma is as high as for squamous cell skin cancer.

Post-transplant lymphoproliferative disorder (PTLD) is incorrect. PTLD tends to manifest as a non-Hodgkin's lymphoma in renal transplant recipients. Non-Hodgkin's lymphoma is around 5-15 times more common in this patient cohort than in the general population but is still not as common as squamous cell skin cancer.

Renal cell carcinoma is a relatively rare complication of renal transplantation. Like most malignancies, its incidence is increased in renal transplant patients, but it is far less common than squamous cell skin cancer.

Question:

A 30-year-old female presents to her GP for advice about contraception. She is provided with information and advice regarding all methods of contraception available and decides to opt for a copper IUD. A pregnancy test done at the surgery is negative. She has a regular 28-day cycle. At what point in her menstrual cycle can the IUD be inserted?

A.Days 1-7

B.Days 8-14

C.Days 15-21

D.Days 22-28

E.Anytime during cycle

Answer:Anytime during cycle

Explanation:

The copper IUD can be fitted at any point during the menstrual cycle. It can also be fitted immediately after first or second-trimester abortion, and from 4 weeks postpartum.

Note the importance of advising the patient to refrain from intercourse or use adequate contraception to prevent pregnancy until the IUD is fitted.

Please refer to the NICE guideline CG30 on long acting reversible contraception for further reading on LARCs. https://www.nice.org.uk/guidance/CG30/chapter/1-Recommendations#copper-intrauterine-devices

Question:

Which one of the following is the most common cause of nephrotic syndrome in children?

A.Minimal change disease

B.IgA nephropathy

C.Focal segmental glomerulosclerosis

D.Chronic pyelonephritis

E.Infantile microcystic disease

Answer:Minimal change disease

Explanation:

Minimal change glomerulonephritis nearly always presents as nephrotic syndrome, accounting for 80% of cases in children and 25% in adults. The majority of cases are idiopathic and respond well to steroids

Question:

A 39-year-old man returns from a two week business trip to Kenya. Four weeks after his return he presents to his GP complaining of malaise, headaches and night sweats. On examination there is a symmetrical erythematous macular rash over his trunk and limbs associated with cervical and inguinal lymphadenopathy. What is the most likely diagnosis?

A.Typhoid fever

B.Tuberculosis

C.Dengue fever

D.Schistosomiasis

E.Acute HIV infection

Answer:Acute HIV infection

Explanation:

Man returns from trip abroad with maculopapular rash and flu-like illness - think HIV seroconversion

Important for meLess important

Stereotypes are alive and well in medical exams. For questions involving businessmen always consider sexually transmitted infections. The HIV prevalence rate in Kenya is currently around 8%.

Question:

A 60-year-old man undergoes percutaneous coronary intervention for an ST-elevation myocardial infarction.

After 12 hours he becomes pale, clammy, and bradycardic. The ECG shows complete disassociation between the atria and ventricles.

What coronary artery is most likely to have been affected?

A.Anterior interventricular artery

B.Left anterior descending coronary artery

C.Left circumflex artery

D.Left main stem coronary artery

E.Right coronary artery

Answer:Right coronary artery

Explanation:

Complete heart block following a MI? - right coronary artery lesion

Important for meLess important

The correct answer is the right coronary artery. Infarction of this vessel is associated with complete heart block as it supplies the atrioventricular node in the majority of people (90%). Infarction of the AV node leads to a loss of the normal conduction pathway from the atria to the ventricles. This is a well-known complication post-MI.

Anterior interventricular artery is incorrect. This is an alternative name for the left anterior descending artery. Occlusion of this vessel typically causes anterior myocardial infarction. It supplies the anterior 2/3s of the interventricular septum and anterior left ventricle. It does not usually cause heart block.

Circumflex artery is incorrect. This is a branch of the left coronary artery. Occlusion of this vessel typically causes lateral or posterior myocardial infarction. It supplies the AV node in a small number of individuals (10%) so could produce complete heart block, but is much less common than the right coronary artery.

Left main stem coronary artery is incorrect. Occlusion of this vessel typically produces anterior myocardial infarction, not heart block.

Question:

A 25-year-old woman presents with painless, itchy skin lesions around her vulva which she has noticed 2 days ago. She describes them as 'lumpy skin tags' and can count about 4-5 discrete lesions. They are non-tender and there is no exudate. She is worried they are not clearing up despite treatment with topical antifungal creams. On further questioning, she engaged in unprotected sexual intercourse with a casual partner 3 months ago.

Given the likely diagnosis, what is the most appropriate treatment for her condition?

A.Continue topical antifungals

B.Cryotherapy

C.HPV vaccine

D.Oral azithromycin

E.Topical podophyllum

Answer:Topical podophyllum

Explanation:

Genital wart treatment

multiple, non-keratinised warts: topical podophyllum

solitary, keratinised warts: cryotherapy

Important for meLess important

Topical podophyllum is the ideal treatment for multiple, non-keratinised warts caused by HPV infection. The presentation of painless, itchy 'skin tags' around the vulva approximately 3 months after unprotected sexual intercourse points to the diagnosis of genital warts, caused by HPV 6 & 11.

Continuing topical antifungals is incorrect as this patient is presenting with the signs and symptoms of genital warts, caused by a virus (HPV) rather than a fungal infection. A fungal infection would present with itching, redness and abnormal vaginal discharge with a 'cottage cheese' appearance. Continuing this medication would not treat her genital warts and could cause side effects such as rashes or blisters.

Cryotherapy is incorrect as this would be more appropriate if she presented with solitary, keratinised warts caused by HPV.

HPV vaccine is incorrect as this would not be effective in treating existing genital warts. The HPV vaccine is now offered to all 12 and 13-year-olds in the UK, as well as men who have sex with men (MSM) who are up to 45 years old.

Oral azithromycin is incorrect as this is a viral infection, and therefore antibiotics would not be helpful in treating her condition. Oral azithromycin is the treatment of choice for Chlamydia, which would present with vaginal discharge and dysuria.

Question:

A 68-year-old man presents to the emergency department with haematemesis. After checking his record, you find out that this man is on dabigatran which was commenced after being diagnosed with pulmonary embolism.

As he is having a life-threatening bleed, the dabigatran effect needs to be reversed.

What agent is used to reverse the effect of this anticoagulant?

A.Fresh frozen plasma

B.Idarucizumab

C.Protamine

D.Prothrombin complex

E.Vitamin K

Answer:Idarucizumab

Explanation:

Idarucizumab is a reversal agent for dabigatran

Important for meLess important

This man presents with upper gastrointestinal bleeding while on dabigatran. The use of 𝐈𝐝𝐚𝐫𝐮𝐜𝐢𝐳𝐮𝐦𝐚𝐛 which is a monoclonal antibody fragment is indicated to reverse the effect.

𝐅𝐫𝐞𝐬𝐡 𝐟𝐫𝐨𝐳𝐞𝐧 𝐩𝐥𝐚𝐬𝐦𝐚 is sometimes used to reverse the effect of warfarin in patients with bleeding and high INR when prothrombin complex is unavailable and is not used as a reversal agent for direct oral anticoagulants (DOAC) such as dabigatran.

𝐏𝐫𝐨𝐭𝐚𝐦𝐢𝐧𝐞 is used to reverse the heparin effect in those on heparin who are bleeding or need an urgent operation, however, it is ineffective in reversing DOAC effect.

𝐏𝐫𝐨𝐭𝐡𝐫𝐨𝐦𝐛𝐢𝐧 𝐜𝐨𝐦𝐩𝐥𝐞𝐱 which is a concentrate of the four vitamin K dependents factors is used to treat warfarin over coagulation in patients presenting with major bleed.

𝐕𝐢𝐭𝐚𝐦𝐢𝐧 𝐊 is also used for the reversal of warfarin (a vitamin K antagonist) in those on warfarin and has high INR. It would not be helpful in this scenario as it is not effective in reversing DOAC effect.

Question:

A 35-year-old female is undergoing pre-operative assessment for an elective cholecystectomy following 2 episodes of severe biliary colic. She has no other comorbidities, but smokes 2-3 cigarettes a day. She has a body mass index of 28kg/m². She asks when she should stop her oral contraceptive pill. What is the gold-standard?

A.2 days prior

B.2 weeks prior

C.4 weeks prior

D.8 weeks prior

E.No need to stop oral contraceptive pill

Answer:4 weeks prior

Explanation:

The important thing to note about this question is the type of surgery this patient is having. This patient is having an elective procedure under general anaesthesia. Although it is a day case, she is a smoker and is overweight (risk factors for clots). Thus she would need the general advice of stopping her oral contraceptive pill for the procedure which is 4 weeks.

The gold standard for stopping oral contraceptive pill prior to surgery is 4 weeks. However there are some cases (ex. If the operation is under local anaesthetic) where there would be no need to stop oral contraceptive pill.

Question:

A 25-year-old woman presents with a swollen first finger and wrist pain associated with a 4 month history of generalised fatigue. She has no other symptoms including no skin changes, and no previous medical history. Her mother suffers from psoriasis. She had the following blood tests as part of her investigations.

Hb 125 g/l

Platelets 390 \* 109/l

WBC 6.5 \* 109/l

ESR 78 mm/h

Rheumatoid Factor Negative

Antinuclear Antibody Negative

What is the most likely diagnosis?

A.Gout

B.Rheumatoid arthritis

C.Systemic lupus erythematosus (SLE)

D.Psoriatic arthritis

E.Osteoarthritis

Answer:Psoriatic arthritis

Explanation:

Whilst SLE and rheumatoid arthritis can affect females of this age group, the most likely option is psoriatic arthritis as the patient has dactylitis and a first- degree relative with psoriasis. In addition, rheumatoid factor and antinucleur antibody are often positive in rheumatoid arthritis, and antinucleur antibody is predominantly positive in SLE.

Gout often affects the first metatarsophalangeal joint of the first toe.

Osteoarthritis is unlikely as the patient is young, has constitutional symptoms (fatigue), a raised ESR and there is no mention of previous injury to the wrist or first finger.

Question:

A 27-year-old woman attends colposcopy as she had moderate dyskaryosis on her recent cervical smear. On colposcopy she has aceto-white changes and a punch biopsy followed by cold coagulation. Histology of the biopsy shows CIN II. When should she next be offered cervical screening?

A.1 month

B.6 weeks

C.6 months

D.12 months

E.Return to normal screening, every 3 years

Answer:6 months

Explanation:

This woman has been treated for cervical intraepithelial neoplasia (CIN) at her colposcopy appointment. She requires follow-up through cervical screening to determine if the lesion has been adequately treated. Women who have been treated for CIN II should be offered cervical screening at 6 months through cervical screening and a HPV test of cure.

If a woman has a positive-test after treatment they should return to colposcopy.

Question:

A 70-year-old is seen on the ward after originally being admitted for a urine infection requiring several courses of antibiotics.

The patient’s symptoms had initially improved, however, they developed some diarrhoea and vomiting a few days ago and therefore were kept in hospital.

Today the patient appears to have deteriorated with worsening diarrhoea and new abdominal pain. Stool samples taken at the onset of the diarrhoea confirmed the presence of Clostridium difficile.

A CT abdomen is performed demonstrating a partial ileus and evidence of severe disease.

What treatment should be started?

A.IV fidaxomicin and IV vancomycin

B.IV metronidazole and IV vancomycin

C.Oral fidaxomicin and IV vancomycin

D.Oral metronidazole and IV vancomycin

E.Oral vancomycin and IV metronidazole

Answer:Oral vancomycin and IV metronidazole

Explanation:

In life-threatening C. difficile infection treatment is with ORAL vancomycin and IV metronidazole

Important for meLess important

This patient has developed complications secondary to Clostridium difficile infection due to previous extensive broad-spectrum antibiotic use. The patient has evidence of a life-threatening infection with a partial ileus and severe disease demonstrated on CT imaging. Oral vancomycin and IV metronidazole should be started immediately and a review for potential surgical intervention made early if there is no evidence of improvement.

IV fidaxomicin and IV vancomycin are not used to treat C difficile infections with neither IV forms having a clear role in management. The oral forms of both may be used in different circumstances however vancomycin in combination with IV metronidazole is favoured in life-threatening infections.

IV metronidazole and IV vancomycin is not commonly used in combination for the management of C difficile as even in life-threatening cases an oral form of antibiotic should be used to target existing gastrointestinal bacterial directly.

Oral fidaxomicin and IV vancomycin is again not routinely used for C difficile as, although oral fidaxomicin may have a role in management, the used IV vancomycin does not. The oral form of this antibiotic (not the IV form) may be used instead of fidaxomicin however it should be combined with IV metronidazole in life-threatening cases.

Oral metronidazole and IV vancomycin again is not the suggested combined antibiotic regime with neither oral metronidazole nor IV vancomycin having evidence of effectiveness in life-threatening C difficile infections. The combination of these two antibiotics in their alternative forms has however been shown to be effective with the oral vancomycin targeting the existing gastrointestinal bacteria and the more potent IV metronidazole (compared to its oral form) the infection systemically.

Question:

A 75-year-old woman presents to the GP with a 2-year history of confusion, agitation, and visual hallucinations. On some days, her symptoms are less severe than on others. She initially struggled with following conversations but now gets angry easily and sees people in her living room at night. Recently, she has started shuffling when walking and finds it difficult to get out of chairs. She has no significant past medical or family history.

Given the likely diagnosis, what is the most appropriate initial step in her management?

A.Perform blood tests for potential underlying causes

B.Urgent CT head for potential underlying causes

C.Urgent MRI head for potential underlying causes

D.Urgent geriatrics referral for assessment

E.Urgent neurology referral for assessment

Answer:Perform blood tests for potential underlying causes

Explanation:

A blood screen including FBC, U&E, LFTs, calcium, glucose, ESR/CRP, TFTs, vitamin B12 and folate levels should be done in patients with suspected dementia to check for reversible causes

Important for meLess important

Perform blood tests for potential underlying causes is the correct answer. The patient in the vignette has features of Lewy body dementia (memory problems, fluctuating cognition, agitation, and visual hallucination). The development of parkinsonian motor symptoms is also highly suspicious. However, a blood screen including FBC, LFTs, U&Es, calcium, glucose, ESR/CRP, TFTs, B12, and folate should be performed in all patients with suspected dementia to assess for underlying reversible causes. Some of these causes may be hypothyroidism, hyperparathyroidism, hypoglycaemia, and electrolyte derangements (particularly sodium).

Urgent CT head for potential underlying causes is incorrect. A CT head may be considered to rule out an intracranial pathology such as a space-occupying lesion; however, a more appropriate initial step before imaging would be to perform a blood screen first to rule out reversible underlying causes.

Urgent MRI head for potential underlying causes is incorrect. An MRI may be considered to rule out an intracranial pathology such as brain atrophy and small vessel ischaemia; however, a more appropriate initial step before imaging would be to perform a blood screen first to rule out reversible underlying causes, as an MRI is time-consuming and would be difficult to perform in a patient with agitation.

Urgent geriatrics referral for assessment is incorrect. Although this would be an appropriate step for a more definite diagnosis, a more appropriate initial step before referral would be to perform a blood screen first to rule out reversible underlying causes.

Urgent neurology referral for assessment is incorrect. Referral to neurology may be appropriate given that the patient in the vignette has neurological symptoms (shuffling and difficulty getting up); however, a more appropriate initial step before referral would be to perform a blood screen first to rule out reversible underlying causes.

Question:

A portly 46-year-old man and his wife present to the GP. His wife is concerned that he has been acting strangely over the past 3 months. In particular, he has been irritable and criticizes her and the kids more than often. The changes were subtle at first but now arguments arise every other day. The husband does not feel there is an issue and you note he has difficulty initiating conversation and even pauses halfway through sentences. There is no family history of note and the husband is not taking any recurrent medications.

What is the most likely underlying diagnosis?

A.Alzheimer's disease

B.Huntington's disease

C.Vascular dementia

D.Frontotemporal dementia

E.Pernicious anaemia

Answer:Frontotemporal dementia

Explanation:

Middle aged adult with insidious onset dementia and personality changes = Pick's disease

Important for meLess important

Frontotemporal dementia (also known as Pick's disease) is a type of dementia more common in patients younger than 65. There are different forms of this dementia and patients can experience changes in personality and behaviour. One form in particular (primary progressive aphasia) can present with the inability to produce speech and loss of literacy skills.

Alzheimer's disease and vascular dementia would be highly unlikely in a 40-year-old. Though Huntington's is associated with dementia and possible personality changes, it typically presents differently with motor dysfunction and tends to be a strong inheritance pattern. Though B12 deficiency can experience symptoms of dementia, it would commonly show neurological changes, fatigue, bowel changes and more.

Question:

A 61-year-old man is referred to the haematology clinic with tiredness, significant weight loss and easy bruising over the past 18 months. His blood results are shown below:

Hb 88 g/L Male: (135-180)

Female: (115 - 160)

Platelets 89 \* 109/L (150 - 400)

WBC 72.2 \* 109/L (4.0 - 11.0)

Neuts 62.4 \* 109/L (2.0 - 7.0)

Lymphs 1.1 \* 109/L (1.0 - 3.5)

Mono 3.1 \* 109/L (0.2 - 0.8)

Eosin 2.8 \* 109/L (0.0 - 0.4)

Blood film Obvious leucocytosis with eosinophilia and basophilia visible. Large numbers of immature granulocytes but no blast cells visible.

Which of the following is the most appropriate first-line treatment?

A.Conservative management

B.Fludarabine and cyclophosphamide

C.Imatinib

D.Prednisolone

E.Rituximab

Answer:Imatinib

Explanation:

Chronic myeloid leukaemia - imatinib = tyrosine kinase inhibitor

Important for meLess important

The history and blood results are in keeping with chronic myeloid leukaemia (CML), indicated by the high white cell count which is due to high numbers of myeloid cells and the chronic nature of the presentation. The absence of blast cells indicates this is not acute leukaemia. The presence of anaemia and thrombocytopenia is due to bone marrow dysfunction, usually caused by myelofibrosis, indicating a need to start treatment. The first-line treatment for CML is the tyrosine kinase inhibitor imatinib. It is taken as a daily tablet and has excellent results in CML.

Conservative management is inappropriate now the patient has developed signs of bone marrow dysfunction. There is a role for no treatment in early disease that has been picked up incidentally on a blood test, but at this point this patient needs treatment.

Fludarabine and cyclophosphamide are both chemotherapy agents used in treating chronic lymphocytic leukaemia (CLL). They have no role in managing CML. The abnormalities on the blood tests expected in CLL are similar, but with a differential showing normal or low neutrophil and high lymphocyte counts.

Prednisolone is a glucocorticoid used to treat many conditions. It is often used in treating various forms of lymphoma but has no role in managing CML.

Rituximab is a chimeric monoclonal antibody directed at CD20, a lymphocyte marker. It is used in several conditions including leukaemias and lymphomas of lymphocyte origin. As CML is of myeloid origin, rituximab will not affect it.

Question:

A 79-year-old man is admitted with a fractured distal radius following a fall on his outstretched hand in the morning.

The fracture is reduced and immobilised and he is admitted to the orthopaedic ward. Later that afternoon, a nurse notices that his arms, legs and neck have become very stiff and he appears unwell. He is tachycardic and his temperature is 38ºC. A creatine kinase is found to be elevated.

His past medical history includes Parkinson's disease, hypertension, and stroke.

What is the most likely error to have been made when his drug chart was being written?

A.Prescription of oral morphine solution

B.Withholding metoclopramide

C.Withholding of fluids

D.Withholding of co-beneldopa

E.Withholding of haloperidol

Answer:Withholding of co-beneldopa

Explanation:

Levodopa and other antiparkinsons drugs are 'critical' medicines which should not be stopped on acute admissions and must be delivered on time

Important for meLess important

Acute withdrawal of levodopa can precipitate neuroleptic malignant syndrome. This is a serious condition with a mortality of at least 10% and must be managed in ITU. As a result, levodopa is a critical medication, and must be given on time and not missed with acute admissions.

Giving metoclopramide or haloperidol, rather than withholding them, can precipitate neuroleptic malignant syndrome due to their dopaminergic antagonism.

Oral morphine solution should be given if the patient is in pain with a fracture, and prescription would not cause neuroleptic malignant syndrome.

Fluids may be appropriate if the patient is dehydrated, and omission could cause a tachycardia, but not the rest of these clinical features.

Question:

A 33-year-old woman and her husband present to their general practitioner (GP) complaining of difficulty conceiving. They have been having regular unprotected intercourse for 14 months and have not conceived yet. Semen analysis from the husband was normal. The GP requests a serum progesterone to check for ovulation.

When should this blood test be taken?

A.14 days before her next expected period

B.7 days before her next expected period

C.On the first day of her next menstrual period

D.The day after unprotected sexual intercourse

E.The timing is not important

Answer:7 days before her next expected period

Explanation:

To confirm ovulation: Take the serum progesterone level 7 days prior to the expected next period

Important for meLess important

Serum progesterone is taken to confirm ovulation in patients who are struggling to conceive. It should be taken 7 days before the next expected period to coincide with ovulation.

14 days before the next expected period is incorrect as it would not be timed correctly with the expected day of ovulation.

Taking the serum progesterone on the first day of her next period would be too late and would be after ovulation had occurred.

Serum progesterone does not have to be taken the day after unprotected sexual intercourse as it confirms ovulation, which is unaffected by the timing of intercourse.

The timing is not important is incorrect. Serum progesterone levels are taken to confirm ovulation during a patient's menstrual cycle and so timing it with the expected day of ovulation is very important.

Question:

A 38-year-old woman who is 6 weeks pregnant with twins presents to the early pregnancy unit with a 2-day history of vomiting and postural dizziness. The patient is gravida 3, parity 1, and never had such severe sickness in her previous pregnancies. No one else in the family is sick.

She has a past medical history of hypothyroidism and takes levothyroxine.

On examination, her BMI is 15kg/m² and she has lost >5% of her body weight in the last 2 days. She is visibly dehydrated and her blood pressure is 100/77 mmHg.

What part of the patient's history carries the greatest risk for the development of this condition?

A.Age

B.Hypothyroidism

C.Pregnant with twins

D.Previous pregnancies

E.Weight

Answer:Pregnant with twins

Explanation:

Multiple pregnancy is a risk factor for hyperemesis gravidarum

Important for meLess important

The correct answer is pregnant with twins. Hyperemesis gravidarum can be caused by higher levels of hCG in the body. This means any condition that increases levels of hCG increase the risk of hyperemesis gravidarum. In patients who are having twins, each twin produces hCG increasing the levels and the risk of hyperemesis.

Hypothyroidism is incorrect. Hyperthyroidism is a risk factor for hyperemesis gravidarum. This is because TSH is chemically similar to hCG and higher levels of hCG and TSH cause hyperemesis gravidarum.

Age is incorrect. Despite the fact, that age is often a risk factor for many pregnancy complications there is no correlation between age and rates of hyperemesis gravidarum.

Previous pregnancies is incorrect. Pregnancies in the past do not increase levels of hCG in future pregnancies so do not increase the risk of hyperemesis gravidarum. However, if a patient has had hyperemesis gravidarum in a previous pregnancy they are more likely to develop it in future pregnancies compared to a patient who never had a problem.

Weight is incorrect. Raised BMI is a risk factor for hyperemesis gravidarum however in this case the patient has a normal BMI.

Question:

A patient is admitted from the community to the hospital. Meningitis was suspected by the GP and intramuscular benzylpenicillin was given. In the emergency department, a doctor also gives the patient a dose of intravenous dexamethasone.

Of the following scenarios, what option would receive this additional medication?

A.Meningitis after surgery

B.Meningitis in a 6-months-old

C.Meningitis in an immunocompromised patient

D.Meningitis with meningococcal septicaemia

E.Meningitis with septic shock

Answer:Meningitis in a 6-months-old

Explanation:

Intravenous dexamethasone should not be given to patients with suspected meningococcal septicaemia

Important for meLess important

Meningitis in a 6-month-old is the correct answer. Anyone presenting with meningitis who does not have either meningococcal septicaemia (a non-blanching purpuric rash), septic shock, is recently out of surgery or immunocompromised, should receive intravenous dexamethasone. This is given to reduce the rate of neurological sequelae arising from meningitis due to bacterial lysis. It has been shown to reduce hearing loss as a complication and mortality.

Meningitis after surgery is incorrect. The steroid should be used cautiously after surgery as they dampen the immune system which can lead to an increased risk of postoperative infection and increase the recovery period. For patients with meningitis after surgery, steroids are not recommended.

Meningitis in an immunocompromised patient is incorrect. Steroids will only further dampen their already weak immune system making them vulnerable to life-threatening infections such as CNS fungal infections.

Meningitis with meningococcal septicaemia is incorrect. As per NICE CKS guidelines, meningococcal septicaemia (presenting with a non-blanching purpuric rash) is a contraindication to receiving intravenous steroids as part of medical management.

Meningitis with septic shock is incorrect. The use of intravenous dexamethasone with septic shock patients is not advised as it can increase the risk of muscle weakness and hypernatraemia.

Question:

A 45-year-old man is admitted to the emergency department by the police following a public disturbance. He is clearly agitated and distressed. He claims that there are insects underneath his skin and that your face appears to be melting. When you look up his old notes it is clear that he is well known to the Drug and Alcohol Services and for alcohol misuse. You diagnose him with alcohol withdrawal.

Once the patient is stable, which scoring system would be most appropriate for use in this patient?

A.Alcohol Use Disorders Identification Test (AUDIT)

B.CAGE questionnaire

C.Clinical Institute Withdrawal Assessment (CIWA-Ar)

D.CURB-65

E.Positive and Negative Syndrome Scale (PANSS)

Answer:Clinical Institute Withdrawal Assessment (CIWA-Ar)

Explanation:

The revised Clinical Institute Withdrawal Assessment for Alcohol (CIWA) scale can be used to assess alcohol withdrawal severity

Important for meLess important

As stated, the patient is suffering from alcohol withdrawal. The revised Clinical Institute Withdrawal Assessment for Alcohol (CIWA-Ar) scale is a scoring system that determines the severity of withdrawal by collating scores of symptom severity. Therefore, this would be useful in deciding the next stage of treatment for this patient, including whether to prescribe benzodiazepines for seizure prophylaxis.

The Alcohol Use Disorders Identification Test (AUDIT) and the CAGE questionnaire are both screening tools designed to identify patients who may have problem drinking behaviours or alcohol misuse problems. These are not useful in this patient as he has already been seen by Drug and Alcohol Services.

The CURB-65 score is a scoring system for the severity of community-acquired pneumonia and so is not suitable for this presentation.

The Positive and Negative Syndrome Scale (PANSS) is used for assessing the severity of schizophrenia. While this patient is experiencing hallucinations, they are tactile and visual hallucinations which are more commonly associated with organic illnesses than with schizophrenia. Furthermore, this patient's past alcohol misuse is further suggestion that this is not a schizophrenic episode and so this scoring system is not appropriate.

Question:

A 64-year-old man presents to the emergency department via ambulance. Four hours earlier, he noticed some speech difficulties and his wife phoned the emergency services. He has a past medical history of hypertension, atrial fibrillation and hypercholesterolaemia and is on regular atorvastatin and ramipril. Previously, he elected not to be anticoagulated for atrial fibrillation. He smokes ten cigarettes per day, drinks alcohol occasionally and is the director of a language school.

On examination, he has an expressive dysphasia. There is evidence of right-sided hemiplegia, sensory loss and homonymous hemianopia.

Urgent CT head and CT angiography were organized, which excluded intracranial haemorrhage and confirmed occlusion of the proximal anterior circulation.

What is the most appropriate management?

A.Apixaban

B.Aspirin 300mg

C.Intravenous thrombolysis

D.Intravenous thrombolysis and mechanical thrombectomy

E.Mechanical thrombectomy

Answer:Intravenous thrombolysis and mechanical thrombectomy

Explanation:

Large artery acute ischaemic stroke? Consider mechanical clot retrieval

Important for meLess important

Intravenous thrombolysis and mechanical thrombectomy is the correct answer. Recent NICE guidance states that thrombectomy should be offered as soon as possible and within 6 hours of symptom onset, together with intravenous thrombolysis (if within 4.5 hours), to people who have an acute ischaemic stroke and confirmed occlusion of the proximal anterior circulation demonstrated by computed tomographic angiography (CTA) or magnetic resonance angiography (MRA). This patient meets these criteria and should be offered both thrombolysis and clot retrieval.

Apixaban is incorrect. Anticoagulation for atrial fibrillation is usually delayed for a period of two weeks after the onset of an ischaemic stroke.

Aspirin 300mg is incorrect. This would be the reasonable treatment if the patient presented outside the thrombolysis window and mechanical thrombectomy was deemed unsuitable or unavailable. However, this is not the case in this scenario.

Intravenous thrombolysis is incorrect. While this patient is inside the thrombolysis window and has no apparent contraindications to thrombolysis, they should also be offered mechanical thrombectomy in addition to thrombolysis due to the timing and the anatomical location of their stroke.

Mechanical thrombectomy is incorrect. As this patient presents to the hospital four hours after symptom onset, they should also be offered thrombectomy.

Question:

A 65-year-old man is being treated for sepsis following a chest infection. He calls you over with a nosebleed and you notice big bruises over his arms where his blood was taken earlier. You believe he is suffering from disseminated intravascular coagulation. A set of blood tests are sent.

Which of the following results would best fit with this diagnosis?

A.Platelet count low, Prothrombin time reduced, APTT reduced, Bleeding time reduced

B.Platelet count high, Prothrombin time prolonged, APTT prolonged, Bleeding time prolonged

C.Platelet count low, Prothrombin time normal, APTT normal, Bleeding time prolonged

D.Platelet count low, Prothrombin time prolonged, APTT prolonged, Bleeding time prolonged

E.Platelet count normal, Prothrombin time prolonged, APTT prolonged, Bleeding time prolonged

Answer:Platelet count low, Prothrombin time prolonged, APTT prolonged, Bleeding time prolonged

Explanation:

DIC typical blood picture:

↓ platelets

↓ fibrinogen

↑ PT & APTT

↑ fibrinogen degradation products

Important for meLess important

This question is asking about a man presenting with symptoms of bleeding following an admission with septic features. This is a typical pattern of disseminated intravascular coagulation (DIC). The question is asking about blood tests results in this presentation.

In DIC patients have low platelets and prolonged timing for all of APTT, prothrombin time and bleeding time.

This is the typical pattern of DIC, however, not all of these are necessary for a diagnosis. Even if only three of the above are positive, it is still likely that DIC.

Question:

Thomas is a 76-year-old man who had an unprovoked deep vein thrombosis two months ago for which he takes apixaban. He presents to his GP following a 20-minute episode of unilateral arm weakness that occurred 2 hours ago and has now completely resolved. His neurological examination is normal.

What should his initial management be?

A.Immediate referral to the emergency department for imaging

B.Routine referral to neurology

C.Refer to the transient ischaemic attack (TIA) clinic to be seen within 24 hours

D.Start clopidogrel

E.Aspirin 300mg stat

Answer:Immediate referral to the emergency department for imaging

Explanation:

If a patient is on warfarin/a DOAC/ or has a bleeding disorder and they are suspected of having a TIA, they should be admitted immediately for imaging to exclude a haemorrhage

Important for meLess important

Patients presenting with a suspected TIA whilst taking anticoagulants or who have a bleeding disorder should have urgent imaging to exclude haemorrhage.

Other patients should be given 300mg of aspirin immediately then assessed by a specialist within 24 hours. First-line secondary prevention is clopidogrel 75mg once daily.

A routine referral to neurology would result in an unnecessary delay in treatment.

Question:

A 69-year-old man is in intensive care following has a fall at home in which he sustained a right open tibia/fibula fracture and simple rib fractures in ribs 3-6.

What measures can be taken to help avoid this patient developing a chest infection?

A.Chest physiotherapy and adequate analgesia

B.Continuous positive airway pressure (CPAP) at nighttime

C.Intermittent high-flow oxygen therapy

D.Prophylactic IV cefuroxime

E.Prophylactic oral flucloxacillin

Answer:Chest physiotherapy and adequate analgesia

Explanation:

Adequate analgesia is vital in rib fractures to ensure breathing is not affected by pain; inadequate ventilation may predispose to chest infections

Important for meLess important

Patients with rib fractures can find their deep breathing limited by pain. This causes susceptibility to chest infections as they cannot cough adequately to clear secretions. Chest physiotherapy with breathing exercises, accompanied by adequate analgesia can help to prevent this.

CPAP at nighttime is used in patients with obstructive sleep apnoea to keep the airway open whilst sleeping.

Oxygenation does not affect the patient's ability to take deep breaths and cough properly and high flow oxygen is therefore not appropriate in the absence of hypoxaemia.

The use of prophylactic antibiotics in rib fractures is controversial, and has been shown to reduce rates of empyema and pneumonia in some studies of chest trauma. The use of prophylactic antibiotics can lead to resistance, however, and are therefore not used routinely.

Question:

A 23-year-old man presents to his general practitioner as he is worried about a lump in his right testicle. He has suffered no other symptoms and has no past medical or family history of note. Examination identifies a hard, discrete nodule on the lateral surface of the right testicle which does not trans-illuminate, the left testicle appears normal. Testicular cancer is suspected, serological tumour markers are performed and the patient is referred for an ultrasound investigation.

Which of the following is associated with the likely diagnosis?

A.Decreased serum alpha-fetoprotein (AFP)

B.Decreased serum human chorionic gonadotropin (HCG)

C.Galactorrhoea

D.Gynaecomastia

E.Hyperthyroidism

Answer:Gynaecomastia

Explanation:

Gynaecomastia may be a presenting feature of testicular cancer

Important for meLess important

The correct answer is gynaecomastia.

Testicular cancer is the most common malignancy in men aged 20-30 years. Around 95% of cases of testicular cancer are germ-cell tumours. Germ cell tumours may essentially be divided into seminomas and non-seminomas (e.g. embryonal, teratoma and choriocarcinoma). A common presenting feature of testicular cancer is gynaecomastia, secondary to excess HCG or oestrogen.

Decreased serum AFP is incorrect. AFP is elevated in around 60% of germ cell tumours and is typically normal in non-germ cell tumours. In no testicular cancer is it commonly decreased.

HCG is elevated in around 20% of seminomas and may be normal or raised in a variety of non-seminomas. It is not however, typically decreased in any tumour type.

Galactorrhoea is incorrect. Whilst gynaecomastia is commonly associated with testicular cancer, galactorrhoea is not.

Hyperthyroidism is incorrect. Paraneoplastic hyperthyroidism is however associated with testicular cancer. The pathophysiology for this lies in the fact that alpha subunits of HCG and thyroid-stimulating hormone (TSH) are similar in shape, tumour which cause excess HCG, therefore, stimulate TSH receptors of the thyroid gland.

Question:

A patient is started on finasteride for the treatment of benign prostatic hyperplasia. How long should the patient be told that treatment may take to be effective?

A.Within 8 hours of taking the tablet

B.Within 3 days

C.Up to 7 days

D.Up to 4 weeks

E.Up to 6 months

Answer:Up to 6 months

Explanation:

Finasteride treatment of BPH may take 6 months before results are seen

Important for meLess important

Question:

A 45-year-old man is prescribed bupropion to help him quit smoking. What is the mechanism of action of bupropion?

A.Nicotinic receptor partial agonist

B.Selective serotonin reuptake inhibitor

C.Norepinephrine and dopamine reuptake inhibitor, and nicotinic antagonist

D.Dopamine agonist

E.Dopamine antagonist

Answer:Norepinephrine and dopamine reuptake inhibitor, and nicotinic antagonist

Explanation:

Question:

A 50-year-old woman with chronic kidney disease presents with an acutely painful joint. On examination, the joint is red and swollen. The patient describes waking up with the pain, and it worsens to 9/10 severity over the course of the day. Despite simple analgesia, the pain has not improved.

Their observations are as follows:

HR 115 bpm

BP 120/56 mmHg

RR 21

SpO2 98%

Temperature 39.1°C

Given the likely diagnosis, what is the most likely joint to be affected?

A.Ankle

B.Base of big toe

C.Hip

D.Knee

E.Wrist

Answer:Knee

Explanation:

Septic arthritis in adults is most common in knees

Important for meLess important

Knee is correct. The history in the stem describes septic arthritis; an acutely swollen, painful, erythematous joint, accompanied by a temperature. The knee is the most common location of septic arthritis in adults. The patient is systemically unwell, which makes the other main differential - gout - a lot less likely. Patients with gout are not systemically unwell and it is also less common in females. Women are more likely to get pseudogout which is also most commonly seen in the knee.

Ankle is incorrect. This can be a site of septic arthritis, but the knee is the most common location.

Base of big toe is incorrect. This would be more likely in an acute presentation of gout. Although this patient's history of CKD may predispose them to gout, they would not be systemically unwell if this was the diagnosis. Therefore, septic arthritis is the most likely diagnosis.

Hip is incorrect. Although large joints like the hips are often affected by septic arthritis, the most common joint affected is the knee.

Wrist is incorrect. An acutely red, hot, swollen wrist is a rare presentation, which is often caused by an infection in the radio-carpal joint. Septic arthritis does not normally affect the wrists, therefore this answer is less likely than the knee.

Question:

You are reviewing a 75-year-old male patient with hypertension. He takes 10mg once a day of ramipril and 10mg once a day of amlodipine. His blood pressure remains uncontrolled and you want to start a third agent. His K+is 4.3 mmol/l.

According to the NICE guidelines, what would be the most appropriate third-line agent for this man?

A.Bendroflumethiazide

B.Candesartan

C.Hydrochlorothiazide

D.Spironolactone

E.Indapamide

Answer:Indapamide

Explanation:

Poorly controlled hypertension, already taking an ACE inhibitor and a calcium channel blocker - add a thiazide-like diuretic

Important for meLess important

This patient is >55 years old and is already on an ACE-inhibitor (ramipril) at the maximum dose and a calcium channel blocker (amlodipine) at the maximum dose.

According to the NICE guidelines, thiazide-like diuretics are the next line therapy eg chlortalidone (12.5–25.0 mg once daily) or indapamide (1.5 mg modified-release once daily or 2.5 mg once daily). Therefore, the correct answer here is 5, indapamide.

NICE state that a thiazide-like diuretic should be used in preference to a conventional thiazide diuretic such as bendroflumethiazide or hydrochlorothiazide. Therefore, these two answers are wrong. Candesartan is an angiotensin receptor blocker (ARB) and should not be used in conjunction with an ACE-inhibitor. Spironolactone is used as a fourth agent in resistant hypertension if the K+ is <4.5 mmol/l.

Question:

A 32-year-old man with a background of ulcerative colitis (UC), presents to the GP with a worsening of his symptoms. He reports 6-8 bowel motions a day, that are loose and bloody in nature. He feels systemically unwell and is noted to have a temperature of 38.1ºC.

What is the most appropriate management for this patient?

A.IV antibiotics

B.IV corticosteroids

C.Methotrexate

D.Oral corticosteroids

E.Sulfasalazine

Answer:IV corticosteroids

Explanation:

A severe flare of ulcerative colitis should be treated in hospital with IV corticosteroids

Important for meLess important

This patient is presenting with an acute-severe flare of his UC, as per the Truelove and Witts criteria; >6 bowel motions a day with blood and fever. Accordingly, admission to hospital is indicated for induction of remissions. The first-line agent to induce remission is IV corticosteroid, this should also be done in conjunction with colorectal surgeons, as surgical management may be indicated in the case of further deterioration.

IV antibiotics may be considered if an infective component is suspected or if significantly immunosuppressed. However, antibiotics will not induce remission and can precipitate complications such as Clostridium difficile. Acknowledging that this patient could have an infective gastroenteritis, given his known diagnosis and the presence of bloody diarrhoea, a flare of the disease is the most likely diagnosis and hence steroids are indicated in the first instance.

Methotrexate can be used in the maintenance of remission but is not indicated for the induction of remission in UC.

Oral corticosteroid can be considered in mild or moderate flares, but in severe bouts such as this one, IV steroids are the mainstay of treatment to induce remission.

Sulfasalazine used orally or topically can be used in mild to moderate UC flares, however, steroids are preferable for inducing remission in severe flares.

Question:

A 27-year-old male presented to the emergency department with a humeral shaft fracture after he fell from a rooftop earlier that night during a party. On questioning, he reveals that he had taken recreational drugs before his fall, however, he is uncertain of what he consumed. He is in severe pain and he is given analgesia before being taken to theatre. His humeral fracture is reduced and fixed with a coaptation splint and functional brace.

The following evening, he complains of suprapubic pain and an inability to pass urine. He is found to be in acute urinary retention.

Which drug is most likely to have precipitated his urinary retention?

A.Cannabis

B.Cocaine

C.Ketamine

D.Morphine sulfate

E.Tamsulosin

Answer:Morphine sulfate

Explanation:

Opioid analgesia is a common cause of urinary retention

Important for meLess important

Morphine sulfate is the correct answer. Opioids are quite a common cause of urinary retention in hospital, and given the nature of the injury and the levels of pain the patient was in, it is very likely that he was given some combination of regular morphine analgesia for pain relief.

Cannabis is derived from the cannabis savita species of plant. It contains delta-9 tetrahydrocannabinol (THC) which is responsible for the psychoactive 'high' users experience. It is not commonly associated with acute urinary retention.

Cocaine overdose causes a range of adverse effects, including cardiovascular effects (acute coronary syndromes, arrhythmias, hypertension) and sympathetic effects (tachycardia, diaphoresis, dilated pupils, agitation). It is not associated with an increased risk of urinary retention.

Ketamine is an N-methyl-D-aspartate (NMDA) receptor antagonist. Its use produces a range of effects including euphoria, hallucinations and a strong analgesic effect. Continued use may lead to ketamine bladder syndrome, whereby inflammation and ulceration of the bladder lead to a cystitis-like picture. However, this tends to cause urinary frequency and urgency, not urinary retention.

Tamsulosin is an alpha-1 blocker, used primarily to aid bladder emptying in patients with benign prostatic hyperplasia. It is not associated with a risk of urinary retention.

Question:

A 26-year-old man presents to the emergency department complaining of chest pain and shortness of breath. He has been recently diagnosed with acute pericarditis, which seemed to have resolved a week ago.

On examination, he looks breathless. His heart rate is 92/min, respiratory rate 25/min, blood pressure 88/58 mmHg and temperature 36.5 ºC. Upon cardiovascular examination, it is notable that his radial pulse disappears during inspiration.

He is generally healthy and he is a non-smoker.

What is the most likely cause of his symptoms?

A.Acute heart failure

B.Cardiac tamponade

C.Constrictive pericarditis

D.Dilated cardiomyopathy

E.Myocarditis

Answer:Cardiac tamponade

Explanation:

In cardiac tamponade, there will be an abnormally large drop in BP during inspiration, known as pulsus paradoxus

Important for meLess important

The correct answer is cardiac tamponade. This patient is presenting with breathlessness and chest pain on the background of acute pericarditis. This infection can cause a build-up of fluid in the pericardium which then leads to cardiac tamponade, a potentially fatal situation where the heart is not able to contract properly due to lack of space.

Cardiac tamponade causes hypotension, raised jugular venous pressure and muffled heart sounds (three core symptoms collectively called Beck's triad). Additionally, as in this case, it can cause pulsus paradoxus - a sign described as an abnormally large drop in blood pressure during inspiration, recognisable by the radial pulse disappearance during inspiration.

Normally, there is a slight blood pressure drop on inspiration - as the increased lung volume calls for more blood supply. This results in more blood filling the right heart and less blood reaching the left. In cardiac tamponade, cardiac expansion is limited - the blood collecting in the right ventricle during inspiration pushes on the intraventricular septum, consequently decreasing left ventricular expansion even further. This leads to an excessively large blood pressure drop during inspiration.

Acute heart failure presents with breathlessness, oedema and fatigue. Additionally, most of the cases have normal or elevated blood pressure, which is not seen in this case. It does not cause pulsus paradoxus.

Constrictive pericarditis is very good differential in patient with breathlessness on background of pericarditis. It can be differentiated from cardiac tamponade by the absence of pulsus paradoxus. Instead, it causes Kussmaul's sign, a paradoxical rise in JVP during inspiration.

Dilated cardiomyopathy is most commonly idiopathic. It usually causes signs of heart failure and systolic murmurs, but it does not cause pulsus paradoxus.

Myocarditis is a good differential as it causes chest pain and breathlessness, but it does not cause pulsus paradoxus.

Question:

A 47-year-old patient is reviewed 3 days following a subarachnoid haemorrhage. Their routine blood tests show the following:

Na+ 122 mmol/L (135 - 145)

K+ 4.9 mmol/L (3.5 - 5.0)

Urea 7.3 mmol/L (2.0 - 7.0)

Creatinine 113 µmol/L (55 - 120)

They have no symptoms of hyponatraemia. Their observations are unremarkable. On examination, JVP is at 6 cm, there is no peripheral oedema and their chest is clear. They are receiving no fluids currently.

Further follow-up tests are conducted to investigate the abnormality.

Plasma osmolality ↓

Urine sodium ↑

Urine osmolality ↑

What is the most appropriate initial management?

A.Fluid restriction

B.IV 0.9% NaCl

C.IV hydrocortisone

D.IV hypertonic saline

E.Oral desmopressin

Answer:Fluid restriction

Explanation:

Fluid restriction should be used in euvolemic and hypervolemic hyponatraemic patients who don't have severe symptoms

Important for meLess important

This patient is most likely presenting with a syndrome of inappropriate ADH secretion (SIADH). This can occur due to hypophyseal irritation in a subarachnoid haemorrhage. Water is retained from the urine, resulting in decreased plasma osmolality due to dilution of the blood and more salt than usual is lost into the urine, resulting in an increase in urine sodium and osmolality. The most appropriate initial treatment of SIADH is to fluid restrict to between 500-1000ml per day.

IV 0.9% NaCl may be appropriate for hypovolaemic hyponatraemia. This patient is clinically euvolemic based on the examination findings. Giving further isotonic fluids in SIADH may actually worsen hyponatraemia.

IV hydrocortisone would be appropriate of Addison's was expected. However, this is more likely to present with hypovolaemia and a raised potassium.

IV hypertonic saline may be appropriate for severe hyponatraemia. This includes levels of under 120 mmol/L or symptomatic hyponatraemia. This is either 1.8% or 3% NaCl depending on the local supply.

Oral desmopressin can be used for diabetes insipidus. However, this would present with polyuria and is ruled out due to the increased urine osmolality in this patient.

Question:

A 31-year-old woman visits her GP in a tearful state. One month ago her 5-year-old son died after drowning whilst at a party with friends. Upon questioning the woman tells her GP that she is struggling to sleep, can't seem to function normally and at times suffers from bad stomach cramps. She expresses thoughts that she wishes she had died instead but denies any current suicidal ideation. She says that she has seen her son sitting on the sofa at home at times but knows that this is not real.

Which of the following conditions is she most likely to be suffering from?

A.Cyclothymia

B.Psychosis

C.Severe depression

D.Normal grief reaction

E.Personality disorder

Answer:Normal grief reaction

Explanation:

After major loss a grief reaction is common, it can often last up to 6 months and present with both physical and psychological symptoms. Distinguishing between depression and a normal grief reaction can be difficult as they can often display similar symptoms; however a normal grief reaction lasts under 6 months whereas depression can last longer.

Even though she appears to have brief visual hallucinations, psychosis is not correct here as she displays no other signs.

Question:

Which one of the following statements regarding endometrial cancer is incorrect?

A.Trans-vaginal ultrasound is the first-line investigation

B.Has a poor prognosis

C.Progestogen treatment may be used in frail elderly patients not fit for surgery

D.Treatment of early disease is with total abdominal hysterectomy with bilateral salpingo-oophorectomy

E.Pelvic pain is rarely a presenting feature

Answer:Has a poor prognosis

Explanation:

Endometrial cancer usually has a good prognosis

Important for meLess important

Question:

A 42-year-old man presents with jaundice, pruritus and abdominal pain. He has a past medical history of ulcerative colitis, biliary colic and diabetes mellitus. Blood tests reveal a raised alkaline phosphatase (ALP) and a positive anti-neutrophil cytoplasmic antibody (ANCA) titre.

What is the most likely diagnosis?

A.Auto-immune hepatitis

B.Primary sclerosing cholangitis

C.Primary biliary cirrhosis

D.Granulomatosis with polyangiitis

E.Acute cholecystitis

Answer:Primary sclerosing cholangitis

Explanation:

There is a strong association between primary sclerosing cholangitis (PSC) and ulcerative colitis. The fibrosis and stricturing of the biliary tree give rise to a beaded appearance on endoscopic retrograde cholangiopancreatography (ERCP). PSC is associated with anti-neutrophil cytoplasmic antibodies (ANCA) and anti-smooth muscle cell antibodies.

Question:

A 55-year-old woman presents to the emergency department with new-onset dysuria. She denies any cough, shortness of breath, nausea or vomiting, or changes in bowel habits. She has a medical history of breast cancer currently being treated with doxorubicin and cyclophosphamide.

On examination, her temperature is 38.1ºC, her heart rate is 93 bpm, her blood pressure is 120/75 mmHg, and her oxygen saturations are 97% on room air. Cardiovascular and abdominal examinations are unremarkable. There are no skin changes and she does not appear obviously unwell.

What is the best next step in her management?

A.Immediate full blood count and white cell differentials

B.Immediately prescribe IV nitrofurantoin

C.Immediately prescribe IV piperacillin/tazobactam

D.Immediately request blood cultures and await results before treatment

E.Immediately request chest x-ray

Answer:Immediately prescribe IV piperacillin/tazobactam

Explanation:

If neutropenic sepsis is suspected (i.e. recent chemo + fever) IV antibiotics must be started immediately - do not wait for WBC

Important for meLess important

Immediately prescribe IV piperacillin/tazobactam is correct. This patient has a fever and is undergoing chemotherapy for her breast cancer (doxorubicin and cyclophosphamide) which should raise suspicion of neutropenic sepsis. Many patients with neutropenic sepsis often present without any obvious signs or symptoms that indicate the source of infection as they are unable to mount an inflammatory response. The first management step in all patients with neutropenic sepsis is to immediately give IV broad-spectrum antibiotics, such as piperacillin/tazobactam (Tazocin), even if the diagnosis is suspected and not confirmed until further investigations can be performed, such as a full blood count, chest x-ray etc. This is because the weakened immune response leads to infections being potentially fatal in patients with neutropenic sepsis.

Immediate full blood count and white cell differentials is incorrect. This is considered in neutropenic sepsis once IV antibiotics are given. In all suspected cases of neutropenic sepsis, IV broad-spectrum antibiotics must be given due to the potential severity of the infection and the consequences it can have. Waiting for the full blood count results can risk the patient getting more unwell due to their inability to mount an immune response.

Immediately prescribe IV nitrofurantoin is incorrect. Although this may be used first-line for a urinary tract infection (UTI) and a UTI may be the source of her infection, any patient with suspected neutropenic sepsis should be given immediate broad-spectrum antibiotics. The antibiotics may be changed to something with a narrower range of cover, such as nitrofurantoin, after blood cultures have been done, however this patient needs urgent broad-spectrum cover first.

Immediately request blood cultures and await results before treatment is incorrect. Blood cultures should be taken as soon as possible, however, broad-spectrum IV antibiotics should be given first due to the potential severity of the infection. Awaiting the blood culture results would be inappropriate as this can risk the patient getting more unwell due to their inability to mount an immune response.

Immediately request chest x-ray is incorrect. This may be considered as an initial step in localising the infection, however, treatment must be initiated first, even if the diagnosis is suspected. This is because patients with neutropenic sepsis may not be able to mount an immune response, meaning the infection may be potentially fatal.

Question:

A 34-year-old man presents to his GP complaining of nasal congestion, a post-nasal drip and sneezing. He has been using nasal decongestants for 1 month, and after initially improving noted his symptoms returned.

What should you recommend?

A.Continue nasal decongestants

B.Cease nasal decongestants

C.Refer to ENT

D.Antibiotics

E.Nasal decongestant and saline nasal rinse

Answer:Cease nasal decongestants

Explanation:

Rhinitis medicamentosa is a condition of rebound nasal congestion brought on by extended use of topical decongestants

Important for meLess important

The patient has rhinitis medicamentosa. Treatment of rhinitis medicamentosa involves withdrawal of the offending nasal spray (cold turkey). Use of over the counter saline nasal sprays may help open the nose without causing rhinitis medicamentosa if the spray does not contain a decongestant. Antibiotics are not indicated as it is not an infective process. Referral to ENT is not typically indicated.

Question:

A 31-year-old woman has been referred to rheumatology with a 4 week history of joint pain, a pink, bumpy rash on arms, legs, and trunk, and fevers that spike in the evenings. On examination, there is bilateral cervical lymphadenopathy and the spleen is palpable. Blood tests are ordered, which show a marked leucocytosis (≥ 10,000/µL) and high serum ferritin (350ng/mL) levels but negative tests for antinuclear antibody and rheumatoid factor.

What is the most likely explanation for this patient’s symptoms?

A.Adult-onset Still’s disease

B.Wilson’s disease

C.Haemochromatosis

D.Rheumatoid arthritis

E.Systemic lupus erythematosus

Answer:Adult-onset Still’s disease

Explanation:

Adult-onset Still’s disease is a diagnosis of exclusion and can only be diagnosed if rheumatoid factor and anti-nuclear antibody are negative

Important for meLess important

The triad of joint pain, spiking fevers, and a pink bumpy rash is very characteristic of adult-onset Still’s disease. Additionally, it is also associated with high serum ferritin and leucocytosis. Negative rheumatoid factor and anti-nuclear antibody tests make rheumatoid arthritis and systemic lupus erythematosus less likely. Spiking fevers are not associated with either Wilson's disease or haemochromatosis.

Reference: Collier, Oxford Handbook of Clinical Specialties (10 Ed.), p654.

Question:

An 8-year-old boy presented with a painless swelling on the superotemporal aspect of his orbit. It was smooth on examination, produced no visual disturbances. Following excision it was found to be lined by squamous epithelium and hair follicles. Which of the following lesions most closely matches these findings?

A.Dermoid cyst

B.Desmoid tumour

C.Lipoma

D.Sebaceous cyst

E.Schwannoma

Answer:Dermoid cyst

Explanation:

Dermoid cysts are embryological remnants and may be lined by hair and squamous epithelium (like teratomas). They are often located in the midline and may be linked to deeper structures resulting in a dumbbell shape to the lesion. Complete excision is requires as they have a propensity to local recurrence if not excised.

Desmoid tumours are a different entity, they most commonly develop in ligaments and tendons. They are also referred to as aggressive fibromatosis and consist of fibroblast dense lesions (resembling scar tissue). They should be managed in a similar manner to soft tissue sarcomas.

Question:

A 69-year-old man is seen in the emergency department following a fall at home. He complains of severe pain in the left hemithorax. A visible bruise is noted on examination. A chest x-ray reveals simple fractures of ribs 4 and 5. No other abnormality is noted. The fractures are initially managed conservatively with regular morphine for analgesia. However, the patient continues to be in significant pain. His respiratory rate is 25 /min and his breathing is shallow.

What is the most appropriate next step in management?

A.Contact cardiothoracic surgeons for consideration of surgical fixation

B.Intercostal nerve block

C.Patient controlled analgesia (PCA)

D.Prophylactic chest drain insertion

E.Rib belt

Answer:Intercostal nerve block

Explanation:

Nerve blocks may be considered if a rib fracture is not controlled by normal analgesia

Important for meLess important

Intercostal nerve block is correct. Simple rib fractures are managed conservatively with adequate analgesia to facilitate breathing. Limited breathing due to pain favours the insurgence of complications such as atelectasis and pneumonia. Where simple analgesia fails to control symptoms, intercostal nerve blocks are an option.

Surgical fixation for simple rib fractures should only be considered if conservative options fail to control symptoms after 12 weeks.

Patient controlled analgesia is not typically used for simple rib fractures. Regular morphine has failed to control symptoms, the best next option would be a nerve block.

Chest drain insertion is incorrect. There is no pneumothorax or haemothorax associated with the injury, therefore insertion of chest drain is not indicated.

Rib belt may actually compromise respiratory function and should not be used in the management of simple rib fractures.

Question:

A pregnant woman at 40 weeks gestation with a history of type 2 diabetes starts going into labour. A vaginal delivery is attempted. However during the delivery, the baby's right shoulder becomes stuck despite gentle downward traction. Senior help is called and arrive shortly afterwards and perform an episiotomy. How should this situation then be managed?

A.Forceps delivery

B.Suprapubic pressure

C.Caesarean section

D.Oxytocin infusion

E.McRobert's manoeuvre

Answer:McRobert's manoeuvre

Explanation:

Diabetes mellitus is a risk factor for shoulder dystocia

Important for meLess important

1 - Incorrect. Performing a forceps delivery and using force to pull the baby out would increase the risk of injury to the baby and cause brachial plexus injury.

2 - Incorrect. It would be more appropriate to first perform the McRobert's manoeuvre before applying suprapubic pressure.

3 - Incorrect. This would be a last resort option that would be attempted if other options failed to work.

4 - Incorrect. Oxytocin administration is not indicated in shoulder dystocia. It would stimulate uterine contractions and could cause injury to the baby.

5 - Correct. The McRobert's manoeuvre entails flexion and abduction of the maternal hips, bringing the mother's thighs towards her abdomen. This rotation increases the relative anterior-posterior angle of the pelvis and often facilitates a successful delivery.

Question:

A 61-year-old man presents as he developed enlargement of his breast tissue. He has become very self-conscious and is worried about going on holiday in the summer. Which one of the following drugs is most likely to be responsible?

A.Tamsulosin

B.Phenytoin

C.Mirtazapine

D.Lansoprazole

E.Spironolactone

Answer:Spironolactone

Explanation:

Question:

You prescribe co-amoxiclav for a 76-year-old woman on your ward for severe pneumonia. She has a background of severe dementia and is confused. You realise on the ward round the following morning that she is documented as being penicillin-allergic, and change the prescription to clarithromycin immediately. Two doses of the medication have been given. You notice she has developed a very slight maculopapular rash on her torso. What is the most appropriate course of action?

A.Ask the patient advice and liaison team (PALS) to see the patient

B.Inform your consultant and request that they apologise to the patient

C.Apologise to the patient's next of kin and fill in a clinical incident form

D.Apologise to the patient's next of kin

E.Fill in a clinical incident form

Answer:Apologise to the patient's next of kin and fill in a clinical incident form

Explanation:

As it was you who wrote the prescription, it is you who should apologise for the error if possible. It may be appropriate for the senior clinician to apologise, but this is less ideal as you will be able to give a more through explanation as to why the error occurred. Filling in a clinical incident form is vital, as potential harm may have come to the patient, and this may help to ensure systems are put in place to prevent the error happening again. PALS can be involved after an initial apology, but this is only something that should happen if the patient wants to take the complaint further.

Question:

A 70-year-old woman with a history of rheumatoid arthritis and hypertension comes to the GP to review the results of some recent investigations. She is vegan and works on a farm. Examination shows boutonniere and swan-neck deformities of her fingers but is otherwise normal. Her DEXA scan T-score was -3. Blood results are shown in the table below.

Calcium 1.9 mmol/L (2.1-2.6)

Phosphate 1.3 mmol/L (0.8-1.4)

Magnesium 0.8 mmol/L (0.7-1.0)

Thyroid stimulating hormone (TSH) 3.0 mU/L (0.5-5.5)

Free thyroxine (T4) 12 pmol/L (9.0 - 18)

Amylase 280 U/L (70 - 300)

Uric acid 0.24 mmol/L (0.18 - 0.48)

Creatine kinase 132 U/L (35 - 250)

What treatment should be initiated first?

A.Alendronate

B.Calcium replacement

C.Dietary and lifestyle advice

D.Pamidronate

E.Recheck T-score in one year

Answer:Calcium replacement

Explanation:

Hypocalcemia/vitamin D deficiency should be corrected before giving bisphosphonates

Important for meLess important

Calcium replacement is correct. Hypocalcaemia/vitamin D deficiency should be corrected before giving bisphosphonates. When starting bisphosphonate treatment for osteoporosis, calcium should only be prescribed if dietary intake is inadequate. This woman is hypocalcaemic and is vegan, suggesting her dietary intake is inadequate and so calcium replacement is required.

Alendronate is incorrect. This is a suitable choice of a first-line bisphosphonate, but this patient's hypocalcaemia must be corrected before this is initiated.

Dietary and lifestyle advice is not suitable. This woman is hypocalcemic and has osteopenia and this needs to be corrected. Dietary and lifestyle advice may be appropriate alongside pharmacological measures but is not an appropriate first step in this patient's management.

Pamidronate is incorrect. This is an intravenous bisphosphonate that may be initiated by a specialist if first-line bisphosphonates are contraindicated or not tolerated.

Recheck T-score in one year is incorrect. This patient's T score puts her in the range for osteoporosis.

Question:

A 32-year-old woman attends her GP with weight loss and tremors. On questioning, she also reports loose stools and increasing anxiety.

She has a past medical history of type 1 diabetes.

What is the most sensitive and specific test to confirm the likely diagnosis?

A.Anti-thyroid peroxidase antibodies

B.Free T4 levels

C.Presence of ocular symptoms

D.Thyroid scintigraphy

E.Thyroid-stimulating hormone receptor antibodies

Answer:Thyroid-stimulating hormone receptor antibodies

Explanation:

TSH antibodies are found in 90% of patients with Graves' disease and can help distinguish from other forms of hyperthyroidism

Important for meLess important

This woman presents with the clinical picture of hyperthyroidism - she has weight loss, tremors, altered bowel habits and anxiety. Additionally, there is a history of autoimmune disease which makes the diagnosis more likely. The most likely cause of hyperthyroidism is Graves' disease. The question asks specifically for a sensitive and specific test. The correct answer is thyroid-stimulating hormone receptor antibodies. A positive result on this assay yields over 90% sensitivity and specificity for Graves' disease, making it the gold standard measurement.

Anti-thyroid peroxidase antibodies is an incorrect answer. These are found in a significant proportion of patients with Graves' disease, but not all patients. Equally, they are also found in Hashimoto's thyroiditis. Therefore, this test is not as sensitive or specific as other tests.

Free T4 levels is an incorrect answer. Whilst this will be part of the investigations to confirm the presents of hyperthyroidism, it will not help in the diagnosis of Graves' disease itself.

The presence of ocular symptoms is incorrect. These are only found in about 30% of patients with Graves' disease.

Thyroid scintigraphy is incorrect. Thyroid scintigraphy is highly specific for Graves' disease, but not as sensitive as serum autoantibody assays.

Question:

A 72-year-old woman is reviewed following a course of oral flucloxacillin for right lower limb cellulitis. The local protocol suggests oral clindamycin should be used next-line. Which one of the following side-effects of clindamycin is it most important to warn her about?

A.Heartburn or indigestion

B.Jaundice

C.Sore throat, bruising or lethargy

D.Avoid any food or drink containing alcohol

E.Diarrhoea

Answer:Diarrhoea

Explanation:

Clindamycin treatment is associated with a high risk of C. difficile

Important for meLess important

Question:

An 18-year-old male presents to his local GP surgery. He is due to start university in two months time and has been told by his friends that he should 'have a vaccine' before he starts. He identifies himself as 'White British', has no past medical history of note and is due to study history at the University of Birmingham. Which one of the following vaccines should he be offered as part of routine NHS immunisation?

A.Meningitis ACWY

B.Hepatitis B vaccine

C.Human papilloma virus

D.BCG vaccine

E.Meningitis B

Answer:Meningitis ACWY

Explanation:

The NHS now recommends the meningitis ACWY for all new students due to an outbreak of meningitis W in the past few years.

Question:

A 77-year-old woman on your ward has chronic kidney disease. Blood results are below. You have been asked to prescribe a suitable therapy.

Phosphate 1.8 mmol/l

PTH 85 pg/ml

Of the following, which is most likely to correct vitamin D deficiency in your patient?

A.Sando-K (effervescent potassium)

B.Calcium carbonate

C.Phosphate sandoz (effervescent phosphate)

D.Thiamine

E.Alfacalcidol

Answer:Alfacalcidol

Explanation:

Alfacalcidol is used as a vitamin D supplement in end-stage renal disease because it does not require activation in the kidneys

Important for meLess important

Vitamin D has several forms and requires hydroxylation in the kidneys before it is active. In patients with severe renal impairment, alfacalcidol does not require activation in the kidneys and therefore is useful for replacing vitamin D.

Sando-K and phosphate sandoz would increase potassium and phosphate respectively so would not treat the patient.

Thiamine is a vitamin B replacement.

Calcium carbonate is a phosphate binder used in chronic kidney disease, but would not supplement vitamin D specifically.

Question:

A 64-year-old man has booked in with you today to discuss whether he needs antibiotics before having a root canal. His dentist has advised him to speak with his GP because he previously had infective endocarditis. On reading his electronic record, you note that he has type 2 diabetes and hypertension. He also has native valvular heart disease and the original infection was caused by staphylococcus. Today, he appears well and has no acute medical issues.

What treatment is indicated according to NICE?

A.Amoxicillin

B.Chlorhexidine mouthwash

C.Clarithromycin

D.Flucloxacillin

E.No specific treatment

Answer:No specific treatment

Explanation:

Antibiotic prohylaxis to prevent infective endocarditis is not routinely recommended in the UK for dental and other procedures

Important for meLess important

No specific treatment - this answer is in line with current guidance. Antibiotic prophylaxis to prevent infective endocarditis is not routinely recommended in the UK for dental and other procedures. Patients should be given clear and consistent information about prevention.

Amoxicillin - this would potentially treat the most common bacteria implicated in infective endocarditis and is indicated for prophylaxis in some international guidelines, but prophylaxis of endocarditis is not routinely recommended according to NICE.

Chlorhexidine mouthwash - although this would have an effect on the oral flora, it is not recommended for prophylaxis of endocarditis.

Clarithromycin - this would potentially treat some bacteria implicated in infective endocarditis, but prophylaxis of endocarditis is not routinely recommended.

Flucloxacillin - this would potentially treat some bacteria implicated in infective endocarditis, but prophylaxis of endocarditis is not routinely recommended.

Question:

A 35-year-old man presents to the emergency department following an intentional overdose. At 08:35, he took 60 aspirin tablets at once after an argument with his partner. He has a past medical history of anxiety and depression, self-harm and several hospital admissions due to intentional overdose. On examination, his temperature is 38.0ºC, his heart rate is 112 bpm, his blood pressure is 115/75 mmHg, and his respiratory rate is 25 breaths per minute. It is now 09:25.

What is the next best step in his management?

A.Activated charcoal

B.Fomepizole

C.Haemodialysis

D.IV acetylcysteine

E.IV bicarbonate

Answer:Activated charcoal

Explanation:

Activated charcoal can be used within an hour of an aspirin overdose

Important for meLess important

Activated charcoal is correct. Patients who present within 1 hour of an intentional aspirin overdose can be offered activated charcoal. This adsorbs the ingested salicylate in the gastrointestinal tract, preventing its absorption. The time that has passed since his overdose is 50 minutes, meaning he can be offered activated charcoal.

Haemodialysis is incorrect. Haemodialysis is indicated in scenarios where there is severe poisoning (such as high levels in serum, acute renal failure, seizures, coma, pulmonary oedema etc.). This patient does not have features as of yet that would warrant haemodialysis and there have not been any investigations performed yet that confirm any of these factors, so he should be offered the activated charcoal first prior to the availability of these investigations.

IV acetylcysteine is incorrect. This is used in the management of a paracetamol overdose, not aspirin.

IV bicarbonate is incorrect. This may be considered as an intervention down the line, however, it would be more appropriate to consider this based on investigations such as salicylate levels and blood gases. Since these are not available and it has been less than 1 hour since ingestion, he should be offered the activated charcoal first prior to the availability of these investigations.

Fomepizole is incorrect. This is used in the management of ethylene glycol or methanol poisoning, not aspirin.

Question:

A 15-year-old boy presents to the emergency department with sudden onset of severe right testicular pain that started five hours ago during his football match. The pain radiates to the lower abdomen. He experienced two episodes of vomiting before presenting to the emergency department.

On examination, the right testis is retracted upwards and tender on palpation. The left testis is normal. The cremasteric reflex is absent on the right.

What is the most crucial management of this patient?

A.Admit for next day bilateral orchidopexy

B.Observe for 4 hours

C.Perform an urgent ultrasound scan of the testes and prescribe IV antibiotics

D.Urgent bilateral orchidopexy

E.Urgent right testicular orchidopexy

Answer:Urgent bilateral orchidopexy

Explanation:

Testicular torsion surgery should involve fixation of both testes to prevent torsion of the other testes

Important for meLess important

Orchidopexy describes the process of fixating the testes in the scrotum. The teenager presenting to the emergency department after sudden onset testicular pain during strenuous activity is classic for testicular torsion. Examination findings of a retracted testis with an absent cremasteric reflex are typical of testicular torsion.

Urgent bilateral orchidopexy is correct in this scenario as it is the recommended management for testicular torsion as it could be a presentation of bell clapper testis, which is often bilateral. To reduce the risk of recurrence of testicular torsion in the other testis, surgeons often perform bilateral orchidopexy.

Admit for next day bilateral orchidopexy is incorrect for this question because testicular torsion is a surgical emergency. If not treated urgently, it will lead to testicular ischemia and necrosis.

Observe for 4 hours is incorrect in this scenario. This option is wrong as testicular torsion is a surgical emergency and requires immediate surgical correction.

Perform an urgent ultrasound scan of the testes and prescribe IV antibiotics is incorrect in this scenario. An ultrasound scan might show signs of swelling of the testes but does not contribute much to the diagnosis that can be confirmed by physical examination. Intravenous antibiotics do not have a role here as it is not due to an infectious cause.

Urgent right testicular orchidopexy is incorrect in this scenario as NICE guidelines recommend fixing both testes to reduce the risk of occurrence in the other testis.

Question:

You are attempting to take a history from a patient on the stroke ward. They are able to speak clearly, however the content of their speech is unrelated to the questions you ask them, and makes little to no sense. You ask them to repeat a series of phrases, which they are unable to do.

A lesion to which region of the brain is responsible for this presentation?

A.Left superior temporal gyrus

B.Left temporo-occipital region

C.Left arcuate fasciculus

D.Left angular gyrus

E.Left inferior frontal gyrus

Answer:Left superior temporal gyrus

Explanation:

Wernicke's aphasia is due to a lesion of the superior temporal gyrus

Important for meLess important

Wernicke's aphasia is a receptive aphasia, due to a lesion of the superior temporal gyrus, which results in patients being able to produce fluent speech, but comprehension and repetition is impaired.

A lesion to the temporo-occipital region would result in transcortical sensory aphasia

A lesion to the arcuate fasciculus would result in conduction aphasia

A lesion to the angular gyrus would result in Gerstmann Syndrome

A lesion to the left inferior frontal gyrus would result in Broca's aphasia

Question:

A 34-year-old man is seen in the sexual-health clinic with bloody anal discharge associated with perianal and mucosal ulcers; a diagnosis of lymphogranuloma venereum is made.

What is the most important investigation to perform?

A.CEA tumour marker

B.Faecal calprotectin

C.Gonorrhoea NAATs testing

D.HIV testing

E.Syphilis serology

Answer:HIV testing

Explanation:

HIV + proctitis ? Lymphogranuloma venereum

Important for meLess important

Although caused by Chlamydia trachomatis, the majority of patients in the UK with lymphogranuloma venereum will be HIV positive. The converse is also true, in that any HIV positive patient presenting with proctitis, as in this vignette, should raise concerns of lymphogranuloma venereum.

CEA is a tumour marker for colorectal carcinoma and not indicated here. In this case, a clear infective cause of the proctitis is identified, and regardless, this would be an atypical presentation of colorectal carcinoma regardless.

Faecal calprotectin is used in the investigation of potential inflammatory bowel disease. Although IBD can cause proctitis, an infective cause has already been established here so a faecal protectin is not necessary.

Gonorrhoea testing is incorrect; Chlamydia trachomatis is the causative underlying organism in lymphogranuloma venereum. A full STI screen should be performed but HIV screening is the most important test to perform.

Syphilis testing is incorrect. As above, a full STI screen should be performed but HIV prioritised.

Question:

A 33-year-old patient has received a letter from her local hospital regarding her recent smear test. She is aware that she has had two consecutive inadequate sample results.

Due to the two inadequate sample results, what will the next step be for this patient?

A.Colposcopy testing

B.Repeat the smear test in 1 week

C.Repeat the smear test in 3 months

D.Repeat the smear test in 12 months

E.Return to normal recall

Answer:Colposcopy testing

Explanation:

Cervical cancer screening: if two consecutive inadequate samples then → colposcopy

Important for meLess important

If a smear test result comes back as 'inadequate' the patient will be asked to return for a repeat test within 3 months. If the second test is also 'inadequate', the patient will require colposcopy testing.

Question:

A 76-year-old female with multiple myeloma is experiencing acute back pain. Her oral regular analgesic medications include 7.5mg morphine QDS and 1g paracetamol QDS.

What breakthrough dose of morphine should be given?

A.3mg

B.5mg

C.7.5mg

D.10mg

E.15mg

Answer:5mg

Explanation:

Breakthrough dose = 1/6th of daily morphine dose

Important for meLess important

The total daily dose of morphine is equal to 30mg (7.5\*4). The breakthrough dose is 1/6 of the total daily dose of morphine which is 5mg (30/6).

Question:

A 25-year-old man presents with bloating and alteration in his bowel habit. He has been keeping a food diary and feels his symptoms may be secondary to a food allergy. Blood tests show a normal full blood count, ESR and thyroid function tests. Anti-endomysial antibodies are negative. What is the most suitable test to investigate possible food allergy?

A.Total IgE levels

B.Hair analysis

C.Skin patch testing

D.Skin prick test

E.Jejunal biopsy

Answer:Skin prick test

Explanation:

Skin prick testing would be first-line here as it is inexpensive and a large number of allergens can be investigated. Whilst there is a role for IgE testing in food allergy it is in the form of specific IgE antibodies rather than total IgE levels.

Question:

A 22-year-old man was seen in the Emergency Department after his mother reported three separate seizure episodes. He was unable to remember what happened and was unaware anything was happening at the time. His mother describes the episodes lasting 30 seconds each and no obvious trigger. She reported that he lost consciousness and began chewing and licking his top lip, but did not have any limb movements or incontinence. She also said that after each episode he struggled to 'find his words' for at least a minute.

What type of seizure and localising lobe does the above description correspond most to?

A.Focal awareness impaired, parietal lobe

B.Focal aware, frontal lobe

C.Focal awareness impaired, frontal lobe

D.Focal awareness impaired, temporal lobe

E.Focal aware, temporal lobe

Answer:Focal awareness impaired, temporal lobe

Explanation:

Lip smacking + post-ictal dysphasia are localising features of a temporal lobe seizure

Important for meLess important

A new classification for seizures has replaced the following terms:

Simple partial = focal aware

Complex partial = focal awareness impaired

In this case the seizure is focal awareness impaired from the history.

The localising features of lip-smacking and post-ictal speech problems point towards the temporal lobe

https://www.epilepsy.com/article/2016/12/2017-revised-classification-seizures

Question:

A 33-year-old gentleman attends a routine sexual health clinic screen and is found to be HIV positive, with a CD4 count of 900 cells/mm3. He remains asymptomatic. What is the recommended next best step in terms of treatment?

A.Start antiretrovirals when CD4 count reaches 350 cells/mm3 or less

B.Start antiretrovirals when CD4 count reaches 500 cells/mm3 or less

C.Start antiretrovirals when becomes symptomatic

D.Start antiretrovirals immediately

E.Start antiretrovirals when CD4 count reaches 250 cells/mm3 or less

Answer:Start antiretrovirals immediately

Explanation:

Viral load is the single greatest determinant of the risk of HIV transmission. When someone is virally suppressed (viral load is undetectable), the risk of HIV transmission is significantly reduced. Antiretrovirals (ART) reduce HIV transmission by lowering viral load and the evidence now supports early initiation of ART irrespective of CD4 count (WHO 2015 guidelines).

http://apps.who.int/iris/bitstream/10665/246200/1/9789241511124-eng.pdf?ua=1

Question:

A 73-year-old man presents to the eye casualty with a 16-hour history of flashers and floaters in his right eye. The patient is otherwise well and reports no other vision concerns. Past medical history includes hypertension, ischaemic heart disease, and bilateral cataracts. The patient lives alone, is a non-smoker and wears glasses.

On slit lamp examination of the right eye, there appears to be a small tear in the inferior part of the retina, with the surrounding area appearing crinkled.

What risk factor is most associated with this condition?

A.Blocked trabecular meshwork

B.Cataract formation

C.Hyperopia

D.Myopia

E.Steroid use

Answer:Myopia

Explanation:

Myopia is a risk factor for retinal detachment

Important for meLess important

This scenario describes a 73-year-old man presenting with a 16-hour history of flashers and floaters in his right eye, with slit-lamp findings suggestive of retinal detachment. There are numerous risk factors for this condition, including diabetes mellitus, ageing, previous eye surgery, and eye trauma. Myopia is another risk factor for retinal detachment as it is associated with an elongated eyeball, which increases the tension on the retina.

Blocked trabecular meshwork is incorrect. This is associated with open-angle glaucoma, where there is raised intraocular pressure due to poor aqueous humor drainage.

Cataract formation is not correct. Whilst retinal detachment can be associated with previous cataract surgery, the presence of cataracts does not typically cause retinal detachment.

Hyperopia is not correct. Long-sightedness is associated with an eyeball with a shorter axis, which should decrease the stretch of the retina. This is the reverse of myopia which increases the risk of retinal detachment.

Steroid use is incorrect. Steroid use is not typically described as a risk factor for retinal detachment. Steroids can however increase the risk of other pathologies, including cataracts.

Question:

A 28-year-old man presents with a severe, intermittent, piercing left-sided frontotemporal headache over the past few days. It seems to occur early in the morning, around the same time each day and lasts between 15 minutes to 2 hours. He feels sick at the time and is unable to lie still. He had a similar episode last year.

A full neurological examination whilst headache-free is entirely normal.

What is the most likely underlying diagnosis?

A.Carotid artery dissection

B.Cluster headache

C.Migraine

D.Trigeminal neuralgia

E.Venous sinus thrombosis

Answer:Cluster headache

Explanation:

A cluster headache can last between 15 minutes to 2 hours

Important for meLess important

A cluster headache is the most likely here due to the patient demographics, quality of the pain described and the intermittent nature with relatively short duration. The other pointer to this diagnosis is a similar headache occurring the year previous.

A carotid artery dissection would cause persistent symptoms, often including neck pain and neurological symptoms and would not account for the same symptoms 1 year previous.

Migraines would tend to present with episodic, intermittent and unilateral headache, however, patients with migraine usually want to lie still - the opposite of which is true with cluster headache. Alongside, it would be unusual for a migraine to occur around the same time each day, in clusters day after day, and would they would tend to last longer than 15 minutes to 2 hours.

Trigeminal neuralgia tends to have a trigger (such as brushing teeth), more likely affect women and people over the age of 50. The distribution of pain tends to be more facial rather than frontotemporal.

Venous sinus thrombosis would present with gradually worsening headache and often neurological deficit.

Question:

A 33-year-old woman presents to the emergency department with a severe headache. It started three days ago and it built up gradually, becoming unbearable today. Additionally, she is experiencing diplopia and vomiting. She is healthy and has no past medical history. She is a smoker with a 10-pack-year history.

As the doctors are examining her, she suffers from a seizure, which is self-terminating. She never experienced these symptoms before.

What is the most likely diagnosis?

A.Meningitis

B.Migraine

C.Normal pressure hydrocephalus

D.Subarachnoid haematoma

E.Venous sinus thrombosis

Answer:Venous sinus thrombosis

Explanation:

Risk factors for thrombosis, headache, reduced consciousness, vomiting → ?intracranial venous thrombosis

Important for meLess important

The correct answer is venous sinus thrombosis. This patient is presenting with slow-onset severe headache, diplopia, nausea and seizures. These are all features of increased intracranial pressure. These, together with the patient's smoker status, point towards a hypercoagulable state, leading to a diagnosis of venous sinus thrombosis.

Venous sinus thrombosis is defined as a thrombotic obstruction of the cerebral veins and/or dural sinuses. The thrombus will reduce the venous drainage, increasing the intracranial pressure, leading to the aforementioned symptoms. MR venogram is a form of MRI which is used to diagnose this condition, as non-contrast CT head is normal in around 70% of patients.

Meningitis would present with fever, photophobia and neck stiffness, rather than symptoms of elevated intracranial pressure, such as headache, diplopia, vomiting and seizures.

Migraine would not explain the seizures, even if sometimes they can cause diplopia and vomiting.

Normal pressure hydrocephalus would present with dementia, incontinence and disturbed gait, rather than with symptoms of purely elevated intracranial pressure such as diplopia, vomiting and seizures.

A subarachnoid haematoma would present with a severe, sudden onset thunderclap headache, photophobia and neck stiffness, rather than symptoms of elevated intracranial pressure.

Question:

A 47-year-old man is being investigated for anaemia by his general practitioner. He has been experiencing mild shortness of breath for 2 months now. His past medical history is significant for polymyalgia rheumatica.

His latest blood tests come back as follows:

Hb 99 g/L Male: (135 - 180)

Female: (115 - 160)

MCV 76 fl (76 - 95 fl)

Ferritin 190 ng/mL (20 - 230)

Total Iron Binding Capacity 600 µg/dL (250 - 450)

What is the most likely diagnosis?

A.Anaemia of chronic disease

B.B12 deficiency anaemia

C.Haemolytic anaemia

D.Iron deficient anaemia

E.Thalassemia

Answer:Iron deficient anaemia

Explanation:

Iron defiency anaemia vs. anaemia of chronic disease: TIBC is high in IDA, and low/normal in anaemia of chronic disease

Important for meLess important

This man presents a complex picture of anaemia, which has numerous possible sources. His anaemia is microcytic/normocytic and is alongside normal ferritin and raised TIBC. However, this is complicated by his polymyalgia rheumatica. This is an inflammatory disorder, and inflammation will raise ferritin concentration, meaning this may not be a reliable measurement to look at. Ferritin is an acute-phase reactant and is therefore raised in inflammation.

Iron deficient anaemia classically comes as microcytic, with a high total iron-binding capacity. The high TIBC is because the body still has the capability to transport iron around the body since there is not a high concentration of iron currently. Iron deficient anaemia will also have low ferritin, but this man's ferritin levels may not be representative due to his chronic inflammatory condition. Therefore, due to the high TIBC, iron-deficient anaemia is the most likely diagnosis.

Anaemia of chronic disease will also be normocytic, but will likely have a low or normal TIBC. This is because, in anaemia of chronic disease, there is not a lack of iron, but the iron is trapped elsewhere and not able to be used. For example, it is trapped in inflammatory tissue. However, since it is therefore still in the body, the capability of the body to attach to free iron and transport it around is reduced (or normal), represented by TIBC.

B12 deficiency would result in a macrocytic anaemia, and therefore this cannot be the correct answer.

Haemolytic anaemia would result in a normocytic anaemia. It is a comparably rare form of anaemia, and would not explain the abnormalities in iron studies that are seen.

Thalassemia can be considered in a microcytic anaemia. It is normally only considered after iron deficiency has been ruled out. In this case, iron deficiency is a more likely diagnosis due to the results of the iron studies.

Question:

You review a discharge summary from your local emergency department about a 42-year-old man on your practice list who presented to their department following an episode of haemoptysis. The patient smokes 20 cigarettes a day, there were no signs of infection and they have a past medical history of asthma. A chest X-ray, full blood count, and CRP were normal.

What is the most appropriate action to take as a result of this discharge summary?

A.Book asthma nurse review for 2 weeks

B.Smoking cessation advice letter

C.2-week wait referral to respiratory team

D.Book face-to-face follow-up appointment for 2 weeks

E.Organise repeat chest X-ray in 6 weeks

Answer:2-week wait referral to respiratory team

Explanation:

A patient who is >= 40 years old presenting with unexplained haemoptysis should be referred using the suspected cancer pathway (within 2 weeks) to exclude lung cancer

Important for meLess important

This patient is over the age of 40 and has unexplained haemoptysis which should be referred to the respiratory team as a 2-week wait suspected cancer pathway. The normal chest X-ray at the emergency department should not negate referral as lung cancers can present with a normal chest X-ray.

An asthma review may be indicated but would not address the unexplained haemoptysis. There were no signs of infection in the discharge summary so asthma alone is unlikely to be the cause of this symptom.

Smoking cessation is important advice to reduce the risk of multiple malignancies but does not address the underlying immediate concern regarding unexplained haemoptysis either.

Face-to-face follow-up in 2 weeks delays the further investigation of the haemoptysis. It would not be appropriate to delay your 2-week wait referral purely to await your own assessment.

Organising a repeat chest X-ray in 6 weeks would be appropriate for consolidation on a chest X-ray deemed to be caused by pneumonia. In this instance, waiting 6 weeks to perform a further X-ray is an unnecessary delay to further investigation of the haemoptysis.

Question:

A 64-year-old woman with metastatic breast cancer is brought in by her husband. Over the past two days she has developed increasingly severe back pain. Her husband reports that her legs are weak and she is having difficulty walking. On examination she has reduced power in both legs and increased tone associated with brisk knee and ankle reflexes. There is some sensory loss in the lower limbs and feet but perianal sensation is normal. What is the most likely diagnosis?

A.Spinal cord compression at T10

B.Cauda equina syndrome

C.Guillain Barre syndrome

D.Hypercalcaemia

E.Paraneoplastic peripheral neuropathy

Answer:Spinal cord compression at T10

Explanation:

The upper motor neuron signs point towards a diagnosis of spinal cord compression above L1, rather than cauda equina syndrome.

Question:

A 33-year-old woman presents to her GP complaining of 'dizziness' which she noted upon waking and that has gradually worsened over the morning. She describes feeling as if she is spinning. This sensation is constant, but worse when she moves her head. She denies hearing loss or tinnitus. The patient is usually well, although had had 2 days of coryzal symptoms prior to the onset of dizziness.

Otoscopy is unremarkable. Examination of the eyes reveals a fine, unidirectional horizontal nystagmus.

The patient has no past medical history, takes no medications and is a non-smoker.

What is the most likely diagnosis?

A.Benign paroxysmal positional vertigo

B.Labyrinthitis

C.Meniere's disease

D.Posterior circulation stroke

E.Vestibular neuronitis

Answer:Vestibular neuronitis

Explanation:

Hearing is normal in vestibular neuronitis

Important for meLess important

Vestibular neuronitis is characterised by isolated, spontaneous vertigo and is thought to develop due to inflammation of the vestibular nerve following a viral infection. It is associated with spontaneous onset of rotational vertigo, which can present on waking. As in this patient, the vertigo is worsened by changes in head position, although is usually constant even when the head is still. Horizontal nystagmus is usually present and this is always unilateral. Unlike the differential diagnosis of labyrinthitis, vestibular neuronitis is not associated with hearing loss or tinnitus. In this patient, coryzal symptoms followed by the development of acute vertigo with horizontal nystagmus alongside a lack of hearing loss or tinnitus points to vestibular neuronitis as the cause.

Benign paroxysmal positional vertigo causes repeated episodes of short-lived vertigo (lasting seconds) when the head is moved. Although this patient has worsening symptoms with moving her head, her vertigo is constant, not just triggered by head movements. Benign positional paroxysmal vertigo is not associated with preceding upper respiratory tract infections. Nystagmus may be present on moving the head, however, this is typically vertical, not horizontal.

Meniere's disease is an uncommon cause of vertigo and is not typically associated with a preceding upper respiratory tract infection. Unlike constant vertigo seen in this patient, Meniere's disease causes recurrent attacks of vertigo, lasting minutes to hours and resolving between episodes. These attacks are also associated with hearing loss, tinnitus and aural fullness, none of which are seen in this patient.

A posterior circulation stroke is an important differential of acute onset vertigo. However, it is unlikely in this young patient who has no past medical history and is a non-smoker. It is also not associated with a preceding upper respiratory tract infection. Other features suggestive of a stroke, such as a new headache or focal neurology, are not present. In patients with stroke, vertigo may be so severe that they cannot walk, and this usually develops within seconds, unlike vertigo in this patient which has gradually worsened over the day. Another feature of vertigo caused by stroke is nystagmus which is direction-changing, unlike the unilateral nystagmus seen in this patient.

Labyrinthitis presents similarly to vestibular neuronitis, with vertigo developing in association with an upper respiratory tract infection. However, labyrinthitis involves inflammation of the labyrinth of the ear and hence also causes hearing loss and/or tinnitus. As this patient does not have these symptoms, her diagnosis is consistent with vestibular neuronitis.

Question:

A 43-year-old man is admitted to hospital with pyelonephritis due to a ureteric stone. He is subsequently treated with intravenous antibiotics and endoscopic stone retrieval. He makes a good recovery clinically but after a few days his renal function begins to deteriorate and he develops an acute kidney injury. He is apyrexial, his pulse rate is 67 bpm, blood pressure is 134/89 mmHg and he is catheterised and his urine output is approximately 60 ml per hour.

A urine dip is performed which shows the following:

Protein ++

Leucocytes +

Nitrites Negative

Blood Trace

What is the most likely cause of his acute kidney injury?

A.Ongoing urinary tract infection

B.Trimethoprim therapy

C.Bladder outlet obstruction

D.Renal hypo-perfusion

E.Gentamicin therapy

Answer:Gentamicin therapy

Explanation:

Gentamicin causes an intrinsic AKI

Important for meLess important

The urine dip shows proteinuria which would only be present with an intrinsic renal AKI. Given he has been treated for pyelonephritis, treatment with gentamicin would be the most likely cause of an intrinsic renal AKI in this gentleman.

His blood pressure and heart rate do no suggest he is under-perfusing his kidneys and bladder outlet obstruction is not possible if he has a urine output of 60 ml per hour. Ongoing infection is also unlikely given he is apyrexial and nitrites are negative on the urine dip. Trimethoprim is not known to cause intrinsic renal damage.

Question:

A 65-year-old woman presents to the emergency department complaining of intermittent muscle cramps and episodes of paraesthesia in her arms for the past few hours. She has recently undergone a total thyroidectomy.

Her examination is normal, however, whilst having her blood pressure measured the patient's wrist flexes involuntarily. As part of her admission, she has an ECG.

Given the likely diagnosis, what is most likely to be seen on ECG?

A.Flattened T-waves

B.Peaked T-waves

C.Prominent U-waves

D.QTc prolongation

E.Shortened QTc

Answer:QTc prolongation

Explanation:

The most common ECG change in hypocalcaemia is prolongation of the QTc interval

Important for meLess important

QTc prolongation is correct. This patient has presented with symptoms of hypocalcaemia. This is evident from the symptoms of muscle cramps and paraesthesia, as well as a positive Trousseau's sign (carpopedal spasm with the hypoxia of blood pressure monitoring. The most common ECG abnormality seen in hypocalcaemia is QTc prolongation.

Flattened T-waves is incorrect. This patient has presented with signs of hypocalcaemia, which commonly presents with a prolonged QTc on ECG. Flattened T-waves are generally seen in hypokalaemia.

Peaked T-waves is incorrect. This patient has presented with signs of hypocalcaemia. The most common ECG abnormality, in this case, is QTc prolongation. Peaked T-waves are more commonly associated with hyperkalaemia.

Prominent U-waves is incorrect. This patient has presented with signs of hypocalcaemia. Whilst prominent U-waves can be seen in cases of hypocalcaemia, the most common ECG abnormality is a prolonged QTc.

Shortened QTc is incorrect. This patient has presented with signs of hypocalcaemia. This is commonly associated with QTc prolongation on ECG. A shortened QTc is associated with hypercalcaemia.

Question:

A 40-year-old man presents to the emergency department after slipping on the icy pavement and falling backwards.

His past medical history includes two previous falls resulting in attendance at minor injuries unit and Alport syndrome, requiring a hearing aid. He follows a vegan diet.

On examination, he has midline pain at the base of his spine. Radiographs show a new vertebral fracture and multiple previous fractures that have now healed.

Why is his risk of this injury increased?

A.Age

B.Impaired activation of vitamin D

C.Low vitamin D intake

D.Poor balance

E.Sex

Answer:Impaired activation of vitamin D

Explanation:

Chronic kidney disease is a risk factor for osteoporosis

Important for meLess important

Alport syndrome is a genetic condition caused by the defective production of type IV collagen. Features include glomerulonephritis, end-stage kidney disease, and hearing loss, and it is managed using ACE inhibitors and haemodialysis.

Impaired activation of vitamin D is the correct answer. Conversion of vitamin D to its biologically active form, 1,25-dihydroxycholecalciferol, occurs in the kidneys. This function is impaired in chronic renal diseases, such as Alport syndrome. The bones of these individuals are therefore more susceptible to fracture.

Age is incorrect. The risk of osteoporosis increases with age. This man is only 40 years old.

Low vitamin D intake is incorrect. Although poor vitamin D intake is associated with an increased risk of fracture, this is negated in this case by the fact that this man will take supplementary vitamin D in the form of colecalciferol due to his chronic renal disease. Vitamin D is found in meat and dairy products but also in fortified grains and plant sources such as mushrooms.

Poor balance is incorrect. Alport syndrome is characterised by renal and hearing difficulties, but the vestibular system is not affected. This man will therefore not have an increased risk of falls due to poor balance.

His sex is incorrect. Men are at lower risk of osteoporosis.

Question:

A 58 year old female presents to GP complaining of tiredness, aches and pains. On further questioning the patient has been feeling increasingly fatigued over the past few months and has been having joint and muscle pains. Past medical history reveals chronic heart failure treated with isosorbide dinitrate and hydralazine. Hydralazine can cause drug-induced lupus. What is the most useful investigation to confirm this diagnosis?

A.Anti-histone antibodies

B.Anti smooth muscle antibodies

C.Lactate dehydrogenase (LDH)

D.cANCA

E.Alkaline phosphatase (ALP)

Answer:Anti-histone antibodies

Explanation:

Drug induced lupus can present with fatigue, arthritis, myalgia, pericarditis and pleuritis. Option 1 is the correct answer - anti-histone antibodies are present in 95% of patients with drug-induced lupus.

Other drugs that can cause drug-induced lupus: isoniazid, penicillamine, procainamide, phenytoin

Option 2 is associated with autoimmune hepatitis.

Option 3 is a marker of necrosis.

Option 4 is associated with Wegener's granulomatosis.

Option 5: ALP is raised in lots of conditions.

Question:

An 11-year-old boy presents with his mother to the GP complaining of a sore throat. It began 5 days ago following him feeling unwell for a couple of days with a runny nose, but no cough. His mother recorded a temperature of 38.5ºC last night. On examination, there is no tonsillar exudate but there is tender lymphadenopathy in the anterior triangle. The chest is clear, and the child's temperature in the surgery is 36.5ºC.

Should antibiotics be prescribed, and what features of the presentation are important to qualify this decision?

A.No: History of rhinitis, Lack of tonsillar exudate, Lack of cough

B.No: Lack of tonsillar exudate

C.No: Lack of tonsillar exudate, No fever during consultation, Clear chest, <7 day history

D.Yes: Lack of cough, Recorded fever >38ºC, lymphadenopathy

E.Yes: >3 day history, Clear chest, Recorded fever >38ºC, lymphadenopathy

Answer:Yes: Lack of cough, Recorded fever >38ºC, lymphadenopathy

Explanation:

The Centor or FeverPain criteria may be used to decide whether to give antibiotics in the context of sore throat - the question will focus on particular clinical features that would make Abx indicated, which will be common to both scoring systems (e.g. absence of cough)

Important for meLess important

The CENTOR criteria should be employed to try to predict whether a sore throat is likely to be due to a bacterial infection, and therefore would benefit from antibiotics.

The criteria are:

Tonsillar exudate

Tender anterior lymphadenopathy or lymphadenitis

History of fever

Absence of cough

The presence of 3 or 4 of these gives a 40-60% chance of the patient having a streptococcal throat infection, and therefore antibiotics should be prescribed. If two or fewer are present, there is an 80% chance of there not being a bacterial throat infection.

Provided the patient is not allergic to penicillin, phenoxymethylpenicillin (penicillin V) should be given.

The FeverPain score may also be used in making such decisions.

Source: http://cks.nice.org.uk/sore-throat-acute#!scenarioclarification

Question:

You see a 38-year-old woman at the antenatal clinic. She has just had her anomaly scan and is being routinely reviewed. She mentions to the consultant how she is yet to feel the baby move, although in her previous pregnancies she felt movement by 18 weeks gestation.

At what gestation would a referral to the maternal fetal medicine unit for her presentation be warranted?

A.18 weeks

B.20 weeks

C.22 weeks

D.24 weeks

E.28 weeks

Answer:24 weeks

Explanation:

If fetal movements have not yet been felt by 24 weeks, referral should be made to a maternal fetal medicine unit

Important for meLess important

Generally women can feel their babies move around 18-20 weeks, but this can be earlier especially in multiparous women. Reduced fetal movements can be a worrying sign of fetal distress and hypoxia. While singular episodes can often be harmless, they can also be an indication of stillbirths and restricted growth. Absent movements is very concerning and requires further investigation. The 24 week cut off is set by the Royal College of Obstetricians and Gynaecologists (RCOG).

Question:

A 29-year-old woman is brought to the emergency department by the police after trying to break into a movie set. She stated that she was 'only there to see the actor' which whom she claimed she has a romantic relationship. She has never met the actor before though has repeatedly sent him letters over the years. She describes her mood as 'excellent.' She denies any auditory or visual hallucinations. Her appearance is normal and her speech is clear and unremarkable.

Given her behaviour, what is the most likely diagnosis?

A.Schizotypal personality disorder

B.Delusional disorder

C.Narcissistic personality disorder

D.Histrionic personality disorder

E.Bipolar disorder type I

Answer:Delusional disorder

Explanation:

Erotomania (De Clerambault's syndrome) is the presence of a delusion that a famous is in love with them, with the absence of other psychotic symptoms

Important for meLess important

Erotmania is a specific form of delusional disorder that is characterised here by the patient's belief that a famous actor is in love with her, alongside no other symptoms suggesting psychosis or mood disturbance.

Other subtypes of delusion include grandiose and persecutory.

Patients with schizotypal personality disorder hold 'odd' beliefs and display bizarre behaviours but do no hold their beliefs with delusional conviction.

Patients with narcissistic personality disorder display a long-term pattern of inflated self-importance, excessive need for admiration and a lack of empathy.

Patients with histrionic personality disorder tend to be excessively attention-seeking.

Patients with bipolar disorder have periods of mania and depression.

Question:

A 52-year-old female is admitted with worsening breathlessness, which started yesterday evening. For the past 3 days she has had a productive cough with yellow sputum, and has felt generally unwell. Her past medical history includes atrial fibrillation, hyperthyroidism and a recent diagnosis of COPD.

You assess her as follows:

Airway: patent, no secretions or obstruction.

Breathing: appears breathless at rest, demonstrating use of accessory muscles. Equal chest expansion. Respiratory rate is 27 breaths per minute. Oxygen saturations are 86% on room air.

Circulation: pulse is 109 beats per minute, regular rhythm. Capillary refill time is brisk. Heart sounds are normal with no added sounds. Blood pressure is 109/67mmHg

Disability: alert and orientated. Temperature is 37.4 degrees Celsius. Blood glucose levels are 5.6mmol/L.

Exposure: no evidence of trauma or active bleeding.

What is the single most-appropriate next step?

A.Administer bisoprolol

B.Cannulate and give STAT bolus of fluids

C.Administer low flow oxygen (2 litres via nasal cannula)

D.Administer high flow oxygen (15 litres via non-rebreather mask)

E.Prescribe and administer 100mls of 5% dextrose for IV infusion

Answer:Administer high flow oxygen (15 litres via non-rebreather mask)

Explanation:

Any critically ill patient (including CO2 retainers) should initially be treated with high flow oxygen which is then titrated to achieve target sats. Hypoxia kills

Important for meLess important

In this acute situation the most pertinent issue to be addressed here is the hypoxia (oxygen saturations of 86%). Unless proven otherwise, all critically ill patients should be treated with high flow oxygen (15 litres) to treat hypoxia, aiming to raise the saturations to at least 94%.

This would be followed by titration of oxygen to the desired target saturations, which would be determined by an arterial blood gas to detect if the patient retains carbon dioxide. Once you have determined the target saturations, then it may be appropriate to switch to low flow oxygen via a nasal cannula.

You may feel that cannulation and administration of fluids is needed in this situation, however the hypoxia would need to be treated first. Also, a blood pressure of 109/67mmHg is not overly concerning at this stage.

The blood glucose level of this patient is 5.4mmol/L, which is well within normal ranges (4-7mmol/L). This therefore requires no action, thus administration of 100mls of 5% dextrose for IV infusion is not indicated here.

A pulse of 109 beats per minute is likely to be caused by the increased respiratory effort of the patient. This pulse is not extremely high, and the fact that the rhythm is regular would mean that bisoprolol would not be needed for rate-control.

Question:

A 34-year-old female presents with fatigue and frequent headaches. On examination of her eyes, you notice an abnormality during the swinging light test. As the light is moved from the left to the right eye both pupils appear to dilate. The pupillary response to accommodation is normal bilaterally. Fundoscopy is also normal bilaterally. Her past medical history includes type one diabetes and hypertension. What is the most likely explanation for this patients' signs?

A.Raised intracranial pressure

B.Diabetic eye disease

C.Holmes-Adie's pupil on the right

D.Marcus-Gunn Pupil (relative afferent pupillary defect) on the right

E.Argyll Robertson pupil on the right

Answer:Marcus-Gunn Pupil (relative afferent pupillary defect) on the right

Explanation:

Marcus Gunn pupil (relative afferent pupillary defect) is diagnosed during the swinging light test. If there is damage to the afferent pathway (retina or optic nerve) of one eye, the pupil of that affected eye will abnormally dilate when a light is shone into it. This is because the consensual pupillary relaxation response from the healthy eye will dominate. Marcus Gunn pupil can be found in patients with multiple sclerosis. Therefore, given the history, this should be ruled out in this patient.

The history and examination findings in the question are not typical of raised intracranial pressure. Raised intracranial pressure may present with symptoms such as a headache, vomiting, bilateral blurred vision and seizures. Patients with increased intracranial pressure often have bilateral papilloedema on fundoscopy.

Although the history states the female is diabetic, there are typically normal pupillary light responses in patients with diabetic eye disease. Furthermore, with diabetic eye disease, you would expect to see some abnormality on fundoscopy.

Holmes-Aide's pupil is a dilated pupil which poorly (if at all) reacts to direct light, however, slowly reacts to accommodation. This does not correlate to the history.

The information given in the question above does not suggest Argyll Robertson pupil. This is characterised by a constricted pupil that does not respond to light but responds to accommodation. It is usually bilateral and is often associated with neurosyphilis.

Question:

A 36-year-old woman presents to her GP with a painless, firm, immobile lump in her left breast. A core needle biopsy confirms grade II invasive ductal carcinoma of the breast, which is positive for oestrogen receptors. She is told she will need hormone drug treatment to reduce the chance of cancer recurrence after surgery.

Considering the most appropriate endocrine therapy, what side effect should the patient be warned about?

A.Increased risk of infection

B.Insomnia

C.Joint pain and stiffness

D.Osteoporosis

E.Venous thromboembolism

Answer:Venous thromboembolism

Explanation:

Tamoxifen is used in the management of oestrogen receptor-positive breast cancer in pre-menopausal women

Important for meLess important

Tamoxifen is the most appropriate choice of endocrine therapy for pre-menopausal women with oestrogen receptor-positive breast cancer.

Venous thromboembolism is correct. Women taking tamoxifen should be warned about common side effects including hot flushes and menstrual changes as well as more serious or life threatening side effects such as venous thromboembolism. Tamoxifen works in both pre- and post-menopausal women as it is a selective oestrogen receptor modulator that prevents the binding of oestrogen to receptors on the cancer cells.

Increased risk of infection is incorrect. Bone marrow suppression and neutropenia are more likely to be side effects from chemotherapy drugs such as anthracyclines and taxanes, rather than oestrogen-lowering therapies.

Insomnia is incorrect. This is not commonly a side effect of tamoxifen. However, aromatase inhibitors and other endocrine therapies such as trastuzumab (Herceptin) are associated with sleep disturbance. Trastuzumab is a targeted cancer drug used to treat HER2 receptor-positive breast cancer, but not an appropriate drug for treating oestrogen receptor-positive cancer.

Joint pain and stiffness is incorrect. This is not a typical side effect of tamoxifen and is more commonly associated with aromatase inhibitors such as anastrozole and letrozole. Aromatase inhibitors are oestrogen-lowering agents used to treat oestrogen-receptor positive breast cancer, but they are reserved for post-menopausal women, since the majority of oestrogen is produced in the peripheries via the aromatisation of adrenal-produced steroids. In pre-menopausal women like in this scenario, the majority of oestrogen is still produced by the ovaries making tamoxifen a more appropriate drug choice.

Osteoporosis is incorrect. This is more commonly associated with aromatase inhibitors such as anastrozole and letrozole. Tamoxifen is the most appropriate drug choice here and rather has been shown to slow osteoporosis in post-menopausal women, not speed it up.

Question:

An 15-day old baby presents to the emergency department with his mother. His mother states he has not been feeding or drinking well for the last two days. She believes he is not gaining much weight and his stools have been more pale than usual. On examination, you note the baby is visibly jaundiced and has hepatomegaly. Your team conducts a newborn jaundice screen, with one of the differentials being biliary atresia.

What finding would support this diagnosis most?

A.Age of presentation

B.Raised bile acids and liver transaminases

C.Raised level of unconjugated bilirubin

D.Poor feeding and drinking

E.Raised level of conjugated bilirubin

Answer:Raised level of conjugated bilirubin

Explanation:

Conjugated bilirubin is elevated in biliary atresia

Important for meLess important

Conjugated bilirubin is elevated in biliary atresia and therefore this is the correct answer. Biliary atresia can present with prolonged jaundice (present > 14 days of age), hepatomegaly, splenomegaly, abnormal growth, cardiac murmurs if associated cardiac abnormalities are present.

Liver transaminases and bile acids are both raised in biliary atresia, but this cannot distinguish biliary atresia from other causes of neonatal cholestasis.

Poor feeding and drinking is not a differentiating factor, as there are many causes for this.

The age of presentation may support a diagnosis of biliary atresia but there are several other causes of neonatal jaundice in a 15-day old baby such as congenital infections including cytomegalovirus, urinary tract infections, breast milk jaundice and hypothyroidism.

Raised level of unconjugated bilirubin is incorrect, this may be seen if the cause was hypothyroidism.

Question:

A 35-year-old man presents with 24 hours of dysuria, urinary frequency and lower abdominal pain. Observations demonstrate;

temperature of 37.5ºC

heart rate of 70/min

blood pressure 120/80 mmHg

He is tender in the suprapubic region. His urine dip is positive for nitrites and leucocytes and is negative for blood.

What would be the next most appropriate step in this patient's management?

A.7 day course of empirical antibiotics for UTI

B.Await results of urinary microscopy and culture

C.Give a 3 day course of empirical antibiotics for UTI

D.Refer the patient to the emergency department

E.Refer to the local sexual health clinic

Answer:7 day course of empirical antibiotics for UTI

Explanation:

Referral to urology is not routinely required for men who have had one uncomplicated lower UTI

Important for meLess important

NICE advises us that men who present with symptoms suggestive of a lower urinary tract infection (UTI) should be treated empirically with oral antibiotics such as trimethoprim or nitrofurantoin, depending on local microbiology protocols. The antibiotics should be continued for 7 days. A 3 day course would not be considered sufficient.

Antibiotic treatment should not be delayed pending the result of urinary microscopy culture and sensitivity (MC+S), but it is still important to perform this test in order to assess for the presence of resistant bacteria. Waiting for the culture results would be inappropriate in this case since he is symptomatic with a proven infection and therefore requires prompt treatment to prevent ascending infection or sepsis.

NICE advises us that men with UTIs should not routinely be referred to urology unless the infection is recurrent. The two-week rule pathway should be used if the man is;

Aged 45 years and over with unexplained visible haematuria without urinary tract infection, or visible haematuria that persists or recurs after successful treatment of urinary tract infection.

Aged 60 years and over who have unexplained non-visible haematuria and either dysuria or a raised white cell count on a blood test.

Intravenous antibiotics are not usually required to treat urinary tract infections unless there is evidence of fever, riggers, chills, vomiting or confusion. Although this patient has a borderline temperature, his other parameters do not suggest that he is septic or unwell enough to require hospital admission. Therefore be reasonable to treat him with oral antibiotics in the first instance.

Whilst excluding a sexually transmitted infection may be important, this man has symptoms suggestive of a UTI, and there is nothing noted in the history that suggests he has a sexually transmitted infection. He should therefore be treated with empirical antibiotics in the first instance.

Question:

A 7-year-old boy is admitted to your ward after being struck by car.

He has sustained a mid diaphyseal spiral fracture of his left femur and is currently waiting to go to theatre for open reduction and internal fixation of the fracture. Unfortunately the patient also has type-1 Von Willebrand disease. It was diagnosed a year ago following the loss of a tooth, which caused very prolonged bleeding.

Which of the following agents can be administered to reduce bleeding while awaiting theatre?

A.Imipramine

B.Desmopressin

C.Tolterodine

D.Furosemide

E.Chlorothiazide

Answer:Desmopressin

Explanation:

Desmopressin is a synthetic analogue of vasopressin a.k.a antidiuretic hormone (ADH). It stimulates the release of Von Willebrand factor from Weibel-Palade bodies in endothelial cells.

Question:

A 45-year-old man with schizophrenia taking chlorpromazine develops an oculogyric crisis. What side-effect of antipsychotic medication is this an example of?

A.Neuroleptic malignant syndrome

B.Parkinsonism

C.Acute dystonia

D.Tardive dyskinesia

E.Akathisia

Answer:Acute dystonia

Explanation:

Question:

What are the main indications for the use alpha blockers?

A.Urinary incontinence + postural hypotension

B.Migraine prophylaxis + urinary incontinence

C.Hypertension + benign prostatic hyperplasia

D.Hypertension + heart failure

E.Postural hypotension + benign prostatic hyperplasia

Answer:Hypertension + benign prostatic hyperplasia

Explanation:

Question:

A 26-year-old man presents to the emergency department with three days of jaundice, fever and severe right upper quadrant (RUQ) pain. He has not noticed any recent weight loss. Around 10 days ago he had a flu-like illness with nausea/vomiting, muscle aches and fatigue. He has no significant past medical history, takes no regular medications and has not travelled anywhere recently. He goes on to say he had sex with a new male partner 4 weeks ago.

Blood results are as follows:

Bilirubin 64 µmol/L (3 - 17)

ALP 108 u/L (30 - 100)

ALT 1300 u/L (3 - 40)

γGT 62 u/L (8 - 60)

Albumin 60 g/L (35 - 50)

What is the most likely diagnosis?

A.Ascending cholangitis

B.Glandular fever (infectious mononucleosis)

C.HIV

D.Hepatitis A

E.Liver abscess

Answer:Hepatitis A

Explanation:

Hepatitis A presents with flu-like symptoms, RUQ pain, tender hepatomegaly and deranged LFTs

Important for meLess important

Hepatitis A is correct. It is usually associated with contaminated food or water, especially in countries where it is endemic. It is also associated with men who have sex with men or IV drug users who can contract the virus in the UK. The key features, in this case, are jaundice and RUQ pain on a background of a flu-like prodrome with a hepatic picture on LFTs. Of the options given, only hepatitis A would cause the ALT to be raised to >1000.

Ascending cholangitis is incorrect. It can present similarly with Charcot's triad of fever, jaundice and RUQ pain, but you wouldn't expect a flu-like prodrome. The LFTs would also demonstrate a cholestatic rather than hepatic picture (increased ALP more than ALT).

Glandular fever is incorrect. Rarely, the Epstein-Barr virus can cause acute viral hepatitis but this is much less common than hepatitis A and this patient displays no other symptoms of glandular fever such as pharyngitis or lymphadenopathy which you would expect to be present.

HIV is incorrect. HIV is associated with men who have sex with men and it would be important to test this patient for HIV. It can cause deranged LFTs but you would not expect the ALT to be raised >1000 as it does not cause viral hepatitis. The symptoms the patient is demonstrating (RUQ pain and jaundice) are not typically associated with HIV seroconversion.

Liver abscess is incorrect. This can present similarly with a hepatic picture on LFTs, RUQ pain and fever. It would not typically present with a prodrome in the same way as hepatitis A. The patient also has no risk factors for abscess formation such as recent abdominal infection, trauma or surgical intervention. Rapid weight loss is a symptom of liver abscesses which is not seen in this patient making it an unlikely diagnosis.

Question:

A patient has gone to their GP to collect the results of their recent liver ultrasound. The report describes increased echogenicity of the liver. The patient is 1.8m in height and weighs 120kg. Their abdomen is distended. The patient is currently on no medications, drinks no more than 2 pints of cider a week and is a non-smoker. The patient does not complain of any ill-health. What would be the most suitable advice for this patient?

A.Stop drinking

B.Lose weight

C.Start ursodeoxycholic acid

D.Start cholestyramine

E.Urgent referral to hepatology

Answer:Lose weight

Explanation:

Weight loss is the best first line management for NAFLD

Important for meLess important

Weight loss is the most suitable first-line management for non-alcoholic fatty liver disease. This patient only drinks 2 pints of cider a week and this is well below the 14-units-a-week allowance. There is no indication to start any pharmacological interventions. There is no indication of hepatic malignancy and so an urgent referral to hepatology would not be suitable.

Question:

A 38-year-old hiker attends the out-of-hours clinic after being bitten by a tick earlier in the day. The tick was safely removed as soon as it was noticed. He is concerned about Lyme disease as he knows it is prevalent in the area. He does not currently have any symptoms but is requesting antibiotics just in case. On examination, there is a small red mark on his left calf in the location of the bite but no rash.

What treatment is the most appropriate?

A.Chlorphenamine

B.Doxycycline

C.Emollient cream

D.Flucloxacillin

E.No treatment

Answer:No treatment

Explanation:

There is no need for prophylactic antibiotics for Lyme disease in asymptomatic patients bitten by a tick

Important for meLess important

This patient is showing no symptoms of Lyme disease e.g. no rash, lymphadenopathy or tiredness and there is no need for prophylaxis despite his concerns.

Chlorphenamine would be an appropriate treatment if he were to be showing signs of an allergic reaction to the bite, for example, itching or swelling, but is not used for treatment or prevention of Lyme disease.

Doxycycline would be first line in the treatment of Lyme disease however it is not used prophylactically so is not indicated here.

Emollient creams would generally have no effect on a tick bite and he does not describe any other skin issues such as dry skin or itching that would benefit from one.

Flucloxacillin is first line for cellulitis infections however is not indicated in this case as there are no signs of infection i.e. swelling or erythema. It would also not be recommended for the treatment of Lyme disease or for prophylaxis.

Question:

A 37-year-old man presents to the surgical assessment unit with acute appendicitis. You are assessing his fitness for surgery.

He has no relevant past medical history, his GP is monitoring his blood pressure but he has not been started on any medication for it yet. He is a non-smoker and drinks a couple of beers with his meals on Fridays and Saturdays.

The nursing staff have taken his observations, height, and weight. His heart rate is 98 /min, respiratory rate is 17 /min, temperature is 37.8ºC, blood pressure is 148/93 mmHg, saturations are 99% on room air. He is 178 cm tall, weighs 132 kg and his BMI is 41.6 kg/m².

He is seen by an anaesthetist who assesses his American Society of Anaesthesiologists (ASA) grade prior to surgery.

Based on the information above, what ASA grade would this man be?

A.ASA I - normal healthy patient

B.ASA II - patient with mild systemic disease

C.ASA III - patient with severe systemic disease

D.ASA IV - patient with severe systemic disease that is a constant threat to life

E.ASA V - a moribund patient who is not expected to survive without the operation

Answer:ASA III - patient with severe systemic disease

Explanation:

Patients with a BMI that classifies them as morbidly obese (> 40) are grade ASA III

Important for meLess important

ASA grades are useful for assessing a patient's anaesthetic risk and are calculated by anaesthetists before surgery to help determine what anaesthetic agents to use and which patients are probably not suitable for surgery or would likely not survive anaesthetic.

When calculating someone's ASA, as well as their past medical history, you also need to consider their social history. Being a current smoker automatically makes someone an ASA grade II as does social alcohol consumption. Being morbidly obese counts as a 'severe disease' and is, therefore, an ASA grade III.

Question:

A 33-year-old footballer comes to see you reporting ongoing pain in his right knee which started suddenly during a football game. When examining him you ask him to lie flat and bend his knee. As you rotate his foot internally he complains of pain and you note a 'clicking' feeling. The patient asks you what you are doing and you explain to him that you are doing a special test for knee joint problems known as McMurrays test.

Which one of the following is the likely cause for his knee pain?

A.Anterior cruciate ligament tear

B.Meniscal tear

C.Osteoarthritis

D.Posterior cruciate ligament tear

E.Patellar fracture

Answer:Meniscal tear

Explanation:

A meniscal tear is usually caused by twisting of the knee and on examination, McMurrays test will be positive. To perform McMurrays test, the knee is held in one hand, which is placed along the joint line, and flexed while the sole of the foot is held with the other hand. One hand is placed on the medial side of the knee to pull the knee towards a varus position. The other hand is used to rotate the leg internally whilst extending the knee. If pain or a 'click' is felt, this constitutes a 'positive McMurray test'.

An anterior cruciate ligament tear is usually also caused by twisting of the knee and would be exemplified by a positive draw test

Question:

A 28-year-old female presents with a two-day history of a gradual onset severe headache associated with nausea and three episodes of vomiting. She comes across as blunted and states she is having difficulty in finding the right words. She has no significant past medical history and her only medication is the combined oral contraceptive pill. The only thing of note in her family history is that her mother had an unprovoked DVT in her 30s. Given the likely diagnosis, what is the gold standard test to diagnose her condition?

A.Non-contrast CT brain

B.Lumbar puncture - CSF sent for xanthochromia

C.Lumbar puncture - CSF sent for cell counts and gram stain

D.MR venogram

E.Therapeutic trial of sumatriptan

Answer:MR venogram

Explanation:

MR Venogram is the gold standard test for diagnosing venous sinus thrombosis

Important for meLess important

This woman has a number of risk factors for a cerebral venous sinus thrombosis - combined oral contraceptive pill use and a family history of VTE. The gold standard test for diagnosing this is an MR venogram. The headache of a cerebral venous sinus thrombosis is commonly severe but usually presents slightly more insidiously than a 'thunderclap headache', with potentially subtle and non-specific neurology. Sometimes patients presentation includes nausea, vomiting and seizures.

Question:

Which of the following haemodynamic changes is not seen in hypovolaemic shock?

A.Decreased cardiac output

B.Increased heart rate

C.Reduced left ventricle filling pressures

D.Reduced blood pressure

E.Reduced systemic vascular resistance

Answer:Reduced systemic vascular resistance

Explanation:

Cardiogenic Shock:

e.g. MI, valve abnormality

increased SVR (vasoconstriction in response to low BP)

increased HR (sympathetic response)

decreased cardiac output

decreased blood pressure

Hypovolaemic shock:

blood volume depletion

e.g. haemorrhage, vomiting, diarrhoea, dehydration, third-space losses during major operations

increased SVR

increased HR

decreased cardiac output

decreased blood pressure

Septic shock:

occurs when the peripheral vascular dilatation causes a fall in SVR

similar response may occur in anaphylactic shock, neurogenic shock

reduced SVR

increased HR

normal/increased cardiac output

decreased blood pressure

Important for meLess important

SVR will typically increase

Question:

A 16-year-old patient presents to the emergency department with shortness of breath and is referred for an x-ray. The scan shows the presence of a bony growth extending from the C7 vertebrae unilaterally. While not immediately concerning, this could cause problems for the patient in future.

Which condition is more likely to develop in this patient?

A.Atlanto-occipital dislocation

B.Cervical arthritis

C.Hangman's fracture

D.Horner's syndrome

E.Thoracic outlet syndrome

Answer:Thoracic outlet syndrome

Explanation:

A cervical rib is a common cause of thoracic outlet syndrome

Important for meLess important

Thoracic outlet syndrome is the correct answer. The history describes the presence of a cervical rib. Cervical ribs are a congenital defect in which an additional rib grows from the base of the neck just above the collar bone. They occur in approximately 1 in 500 people and are normally harmless.

Approximately 10% of patients with a cervical rib will develop thoracic outlet syndrome. Thoracic outlet syndrome occurs when the cervical rib compresses the nerves and/or blood vessels exiting the thoracic outlet. It can cause symptoms such as pain, weakness and pallor of the affected arm.

Atlanto-occipital dislocation is an incorrect answer. Also known as internal decapitation, this conditions describes when the stabilising ligaments connecting the C1 vertebrae and the skull base are disrupted. It is often the result of trauma and results in instant death for the majority of cases. This patient has no structural defect of the C1 vertebrae or its supporting ligaments and is therefore not at higher risk of this condition.

Cervical arthritis is incorrect. This describes the degenerative processes of joint space erosion and subsequent inflammation. The patient described has a cervical rib which does not impair the facet joints within the spinal column. No studies were found identifying this association.

Hangman's fracture is another incorrect answer. This is a fracture to the C2 vertebrae commonly as a result of hanging. It is unlikely that this 16-year-old boy has a hangman's fracture, especially as there is no history of neck pain or suicide attempts.

Horner's syndrome is an incorrect answer. This syndrome describes a group of symptoms that are caused by disruption of sympathetic innervation to the eye and supporting muscles. Cervical rib is unlikely to disrupt this, however subsequent surgeries for thoracic outlet syndrome result in Horner's syndrome as a complication.

Question:

A 52-year-old male presents with tearing central chest pain. On examination, he has an aortic regurgitation murmur. An ECG shows ST elevation in leads II, III and aVF. What is the likely explanation?

A.Distal aortic dissection

B.Anterior myocardial infarct

C.Inferior myocardial infarct

D.Proximal aortic dissection

E.Pulmonary embolism

Answer:Proximal aortic dissection

Explanation:

An inferior myocardial infarction and AR murmur should raise suspicions of an ascending aorta dissection rather than an inferior myocardial infarction alone. Also the history is more suggestive of a dissection. Other features may include pericardial effusion, carotid dissection and absent subclavian pulse.

Question:

A 53-year-old patient presents to the general practitioner with a 3-year-history of coarse facial features, spade-like hands, large feet. They have been previously managed for the underlying cause of their presentation with trans-sphenoidal surgery, but symptoms have persisted despite this.

Which of the following would be considered first-line in this patient?

A.Bromocriptine

B.Dapagliflozin

C.Desmopressin

D.Growth hormone replacement

E.Octreotide

Answer:Octreotide

Explanation:

Acromegaly: if patients are not suitable for trans-sphenoidal surgery, or have residual symptoms, then octreotide may be used

Important for meLess important

The correct answer is octreotide.

This patient is presenting with features classically associated with acromegaly, a condition characterised by excess growth hormone (GH) production. The most common cause of this condition is a pituitary adenoma, and management is therefor trans-sphenoidal surgery. Some patients do not respond well to surgical management, and octreotide, a somatostatin analogue that directly inhibits GH release, is used as medical therapy.

Dapagliflozin is incorrect; this is an SGLT2 inhibitor that inhibits resorption of glucose in the nephron. It is typically used in the management of type 2 diabetes mellitus.

Bromocriptine is incorrect; this is a dopamine agonist which inhibits the release of prolactin and is therefore used in the management of prolactinoma. For reference, prolactinomas present with impotence, loss of libido and galactorrhoea in men and amenorrhea, infertility and galactorrhoea in women.

Desmopressin is incorrect; this is an anti-diuretic hormone analogue used in the management of cranial diabetes insipidus.

Growth hormone replacement is incorrect as this would exacerbate the patient's acromegaly symptoms and instead should be used in cases of GH deficiency. In children, this would present with dwarfism, while in adults, the presentation is often one of subtle weight gain and weakness.

Question:

A 60-year-old man attended his routine hepatology clinic review today. His medical issues include liver cirrhosis, type 2 diabetes, and hypertension.

On examination, he has scleral icterus and a distended abdomen suggestive of ascites. He looks alert and comfortable. This presentation could be caused by complications from one of his medical conditions.

Which of the following blood test would be helpful in assessing the severity of his complication?

A.Alanin aminotransferase

B.Albumin

C.Alkaline phosphatase

D.C-reactive protein

E.Gamma glutamyl transferase

Answer:Albumin

Explanation:

Liver enzymes are a poor way to look at liver function - they are usually low in end-stage cirrhosis whereas coagulation and albumin are better measures

Important for meLess important

When assessing the severity of liver cirrhosis, albumin level will be a better indicator in showing the functional capacity of the liver. Child-Pugh classification is frequently used to predict mortality in cirrhosis patients. They used albumin level, bilirubin level, INR, presence of encephalopathy, and ascites as their scoring system. Liver enzymes will only give us information on whether a patient’s primary disorder is hepatitis or cholestatic in origin.

Alanine aminotransferase is a type of liver enzyme that indicates that the liver is damaged. In this scenario, since the patient has had liver cirrhosis for a long time, his liver function test (LFT) will be deranged. Hence it will not be useful in assessing the severity of his liver cirrhosis.

Alkaline phosphatase is raised when there are any cholestatic problems. It is also raised in renal failure, bone diseases such as bone metastases or Paget's disease, and pregnant women. In this scenario, since the patient has had liver cirrhosis for a long time, his LFTs will be deranged. Hence it will not be useful in assessing the severity of his liver cirrhosis.

C-reactive protein is an acute-phase protein that will increase when there is an inflammatory condition in the body. In this scenario, it will likely be raised since this patient has liver cirrhosis, but it will not be able to help us assess the severity of it.

Gamma-glutamyltransferase is raised when there are any cholestatic problems. Since this patient has had liver cirrhosis for a long time, his LFTs will be deranged all this while. Hence it will not be useful in assessing the severity of his liver cirrhosis.

Question:

A man is started on the a treatment dose of dalteparin (a form on low-molecular weight heparin) following the diagnosis of a deep vein thrombosis. Which one of the following best describes the type of monitoring he should have?

A.No routine monitoring needed, but in special situations check thrombin levels

B.Monitor prothrombin time (PT) for first 7 days

C.No routine monitoring needed, but in special situations check activated partial thromboplastin time (APTT)

D.Monitor activated partial thromboplastin time (APTT) for first 7 days

E.No routine monitoring needed, but in special situations check anti-Factor Xa levels

Answer:No routine monitoring needed, but in special situations check anti-Factor Xa levels

Explanation:

Question:

Which one of the following side-effects is most associated with ciclosporin use?

A.Hepatotoxicity

B.Bone marrow toxicity

C.Red cell aplasia

D.Haemorrhagic cystitis

E.Tinnitus

Answer:Hepatotoxicity

Explanation:

Ciclosporin may cause hepatotoxicity

Important for meLess important

Question:

You go on a home visit to see Mr Bell, an elderly man who is suffering from an acute diarrhoeal illness he picked up from his grandchildren. His past medical history includes: ischaemic heart disease, type 2 diabetes, hypercholesterolaemia, and osteoarthritis. His medications are bisoprolol 2.5mg OD, ramipril 2.5mg OD, aspirin 75mg, lansoprazole 30mg OD, metformin 1g BD, atorvastatin 40mg ON, and paracetamol 1g PRN. His pulse is 92/min, blood pressure 152/82mmHg, oxygen saturations 97%, respiratory rate 16/min. His tongue looks a little dry, abdomen is soft and non-tender, with very active bowel sounds. After examining him, you feel he is well enough to stay at home, and you prescribe some rehydration sachets and arrange telephone review for the following day.

What else should you advise he change about his medication with immediate effect?

A.Increase dose ramipril

B.Double the dose of lansoprazole

C.Suspend metformin

D.Reduce dose paracetamol to 500mg

E.Increase dose bisoprolol

Answer:Suspend metformin

Explanation:

Metformin increases the risk of lactic acidosis - suspend during intercurrent illness eg. diarrhoea and vomiting

Important for meLess important

Increase dose ramipril. Incorrect. Although his blood pressure is a little high today, it is not the priority and might increase risk of electrolyte disturbance whilst he is unwell - you may even consider suspending it. Blood pressure could be reviewed when he is feeling better.

Double the dose of lansoprazole. Incorrect, no indication for this.

Suspend ramipril. Incorrect. Blood pressure is a little high, and there is no evidence of acute electrolyte disturbance.

Suspend metformin. Correct answer - metformin is associated with an increased risk of lactic acidosis and therefore should be suspended when there is risk eg. dehydration, sepsis, CT with contrast, renal failure, heart failure; particularly if the patient is frail or elderly.

Reduce dose paracetamol to 500mg. Incorrect. Dose might be reduced when patient has a low body weight.

Increase dose bisoprolol. Incorrect. No indication for increasing bisoprolol here.

Question:

A 29-year-old man is on the psychiatric ward under section 2 of the mental health act for suspected schizophrenia. He has a 3-month history of increasing suspicion of his family and had recently begun to collect weapons to defend himself. He started olanzapine 2 weeks ago. He has no other medical conditions and takes no other medications.

Today staff on the ward raised concerns due to his abnormal behaviour. He was found in his room sat on the floor with his back arched and legs hunched upwards. It is reported that he has been like this for the last 2 hours. His observations are normal. He has not spoken or made any movements during this time.

Which of the following best describes his current presentation?

A.Catatonia

B.Extrapyramidal side effects

C.Neuroleptic malignant syndrome

D.Serotonin syndrome

E.Tetany

Answer:Catatonia

Explanation:

Stopping of voluntary movement or staying still in an unusual position = catatonia

Important for meLess important

This clinical scenario describes a man with suspected schizophrenia who has been found to be sat in an uncomfortable, unusual position for the last 2 hours on the ward. Given this history, catatonia (the stopping of voluntary movement or staying in an unusual position) is the most likely cause of his presentation. Catatonia is a group of symptoms that are believed to occur due to abnormalities in the balance of dopamine and other neurotransmitter systems. It is most commonly described to be associated with certain types of schizophrenia. Catatonia can be managed using benzodiazepines and some centres may use electroconvulsive therapy.

Extrapyramidal side effects is incorrect. Extrapyramidal side effects can occur with medications such as antipsychotics and can present with dystonia (continuous muscle spasm and contractions), parkinsonism, and tardive dyskinesia, however, it would be unusual for the sufferer to present with a withdrawn status like above. Given him not speaking and or making any attempts at movement, it is more likely that the man in the scenario is presenting with catatonia.

Neuroleptic malignant syndrome is incorrect. Neuroleptic malignant syndrome (NMS) is a life-threatening reaction to antipsychotic medications (such as olanzapine) which presents with muscular rigidity, fever, altered mental status, and autonomic dysfunction (such as tachycardia and hypertension). It typically occurs within a couple of months of starting an antipsychotic. Given that the patient's observations are normal and his abnormal posturing sounds more like catatonia, NMS is not the single best answer.

Serotonin syndrome is not correct. Serotonin syndrome is another potentially life-threatening reaction that is important to know. It is caused by excess serotonin in the body and can be precipitated by serotonergic medications. Patients can present with seizures, arrhythmias, muscle twitching, and shivering. The above scenario does not fit with this, and the patient is on olanzapine, an antipsychotic, not commonly associated with serotonin syndrome.

Tetany is incorrect. Tetany is a condition usually associated with hypocalcemia, where patients suffer from muscle spasms (commonly the hands and feet), cramps, and hyperreflexia. The above scenario does not match this description.

Question:

A 4-year-old girl presented with a painful left little finger after a door was closed on it. A resulting radiograph shows a fracture line that passes through the metaphysis, growth plate, and epiphysis. What type of fracture is this?

A.Salter Harris 1

B.Salter Harris 2

C.Salter Harris 3

D.Salter Harris 4

E.Salter Harris 5

Answer:Salter Harris 4

Explanation:

Salter-Harris 4: Fracture involving the physis, metaphysis and epiphysis.

Question:

A 9-year-old boy is diagnosed as having Attention Deficit Hyperactivity Disorder and started on methylphenidate. Which one of the following should be monitored during treatment?

A.Visual acuity

B.Electrocardiogram to measure QRS duration every 12 months

C.Growth

D.Urinalysis

E.Liver function tests

Answer:Growth

Explanation:

Question:

A pregnant woman undergoes routine screening blood tests and is found to have an elevated alpha-foetoprotein level. This prompts investigation with ultrasound scanning. The scan reveals an anterior abdominal wall defect with a mass protruding through, which appears to still be covered with an amniotic sac.

Given the likely diagnosis, what would be the normal management for this condition?

A.Caesarian section and immediate repair

B.Caesarian section and staged repair

C.Vaginal delivery and immediate repair

D.Vaginal delivery and monitor newborn during first month

E.Vaginal delivery and staged repair

Answer:Caesarian section and staged repair

Explanation:

If an unborn has exomphalos then caesarean section is indicated to reduce the risk of sac rupture

Important for meLess important

The likely diagnosis here is that of exomphalos (omphalocoele). Alpha-foetoprotein may be elevated with abdominal wall defects. The correct option is caesarian section with staged repair - this would be the normal management as caesarian reduces the risk of sac rupture, and surgery is non-urgent.

A caesarian section with immediate repair would be indicated only if the sac was ruptured.

Vaginal delivery with immediate repair would be indicated for gastroschisis, rather than exomphalos - given the defect and lack of a sac for protection, immediate surgery is required as this is an emergency.

Thus, the remaining two options are incorrect.

Question:

The parents of a 14-month-old girl present to their GP. They have noticed that in some photos there is no 'red eye' on the left hand side. When you examine the girl you notice an esotropic strabismus and a loss of the red-reflex in the left eye. There is a family history of a grandparent having an enucleation as a child. What is the most likely diagnosis?

A.Congenital hypertrophy of the retinal pigment epithelium

B.Uveal malignant melanoma

C.Neuroblastoma

D.Retinoblastoma

E.Congenital cataract

Answer:Retinoblastoma

Explanation:

A congenital cataract may cause a loss of the red-reflex but is likely to have been detected at birth or during the routine baby-checks. It would also not explain the family history of enucleation.

Question:

A 75-year-old gentleman presents to the emergency department with a two week history of gradually worsening shortness of breath. The patient feels that the shortness of breath is worse when lying down and can only sleep using three pillows. Occasionally he wakes up gasping for breath.

You order a chest x-ray.

What findings would you expect on the x-ray?

A.Dilated upper lobe vessels, pleural effusions, Boot shaped heart

B.Cardiomegaly, pleural effusions, deviated trachea

C.Pleural effusions, Cardiomegaly, Kerley B lines

D.Widened mediastinum, Kerley B lines, dilated upper lobe vessels

E.Kerley B lines, hilar lymphadenopathy, Cardiomegaly

Answer:Pleural effusions, Cardiomegaly, Kerley B lines

Explanation:

Alveolar oedema (bat’s wings), Kerley B lines (interstitial oedema), Cardiomegaly, Dilated prominent upper lobe vessels, Effusion (pleural) are features of heart failure on a chest x-ray

Important for meLess important

Below are the x-ray findings you would see in heart failure:

Alveolar oedema (bat’s wings)

Kerley B lines (interstitial oedema)

Cardiomegaly

Dilated prominent upper lobe vessels

Effusion (pleural)

Boot shaped heart is seen in tetralogy of Fallot.

Deviated trachea is a sign of tension pneumothorax.

Widened mediastinum is a sign of aortic dissection or aneurysm.

Hilar lymphadenopathy can have many causes such as infection, malignancy and sarcoidosis.

Question:

A 72-year-old man presents to his general practitioner with progressively worsening breathlessness, particularly on exertion. It is also noted that he has had a dry cough for the last 6 weeks. A diagnosis of pulmonary fibrosis is suspected and the man undergoes spirometry testing.

His predicted spirometry values include:

FEV1 4.31L

FVC 5.30L

Transfer capacity (TLCO) Normal

Which of the following are the most likely spirometry results for this patient?

A.FEV1 = 2.64, FVC = 3.41, TLCO = Increased

B.FEV1 = 2.65, FVC = 4.19, TLCO = Decreased

C.FEV1 = 2.79, FVC = 3.11, TLCO = Increased

D.FEV1 = 2.79, FVC = 3.34, TLCO = Decreased

E.FEV1 = 4.21, FVC = 5.10, TLCO = Normal

Answer:FEV1 = 2.79, FVC = 3.34, TLCO = Decreased

Explanation:

Pulmonary fibrosis causes restrictive spirometry picture (FEV1:FVC >70%, decreased FVC) and impaired gas exchange (reduced TLCO)

Important for meLess important

This question is a test of interpreting spirometry results in the context of a patient presenting with suspected pulmonary fibrosis (a restrictive pulmonary condition that impairs gas exchange). It is important to know that a 'normal' spirometry result has a patient receiving over 80% of their predicted values, and their transfer capacity (TLCO) being normal. If the patient performs lower than 80% of their predicted, the FEV1:FVC ratio can then be assessed. If this ratio is <70%, this is suggestive of an obstructive pulmonary condition (including asthma and chronic obstructive pulmonary disease (COPD)), whereas a ratio greater than 70% is suggestive of a restrictive pulmonary condition (such as pulmonary fibrosis).

Pulmonary fibrosis is a restrictive condition in which gas exchange is impaired, therefore the results should show <80% of the predicted values for FEV1 and FVC, a FEV1:FVC ratio of >70%, and reduced TLCO. As a result, 'FEV1 = 2.79, FVC = 3.34, TLCO = Decreased' is the correct answer.

'FEV1 = 2.64, FVC = 3.41, TLCO = Increased' is an incorrect answer. In these results, a restrictive pattern is seen with a FEV1:FVC of 83.5%, however, the results state an increased TLCO. This is not a typical set of results and would not be the single best answer for this question.

'FEV1 = 2.65, FVC = 4.19, TLCO = Decreased' is incorrect. Whilst these results show reduced FEV1 and FVC values, and decreased TLCO (as seen in pulmonary fibrosis), the FEV1:FVC ratio is 63%, which is suggestive of an obstructive cause instead. These results may instead be seen in conditions such as COPD.

'FEV1 = 2.79, FVC = 3.11, TLCO = Increased' is not correct. The FEV1:FVC ratio here is 89.7% which may suggest a restrictive pathology, however, the increased TLCO is not typical of the results seen in pulmonary fibrosis, where instead transfer capacity will be decreased.

'FEV1 = 4.21, FVC = 5.10, TLCO = Normal' is incorrect. These results are typical of a normal spirometry result, with FEV1, FVC, and TLCO all normal.

Question:

A 66-year-old man presents to his GP complaining of 'funny symptoms' in his eyes. He describes having flashes of light in his eyes for several days. In addition to this, he has been noticing darker 'bits' floating around in his vision. He denies any pain. He is short-sighted and wears glasses but otherwise has no significant past medical history.

On examination, the visual acuity and fields are normal.

What is the most likely cause of his symptoms?

A.Migraine

B.Optic neuritis

C.Posterior vitreous detachment

D.Retinal detachment

E.Retinal tear

Answer:Posterior vitreous detachment

Explanation:

Flashes + floaters are most commonly caused by a posterior vitreous detachment

Important for meLess important

The most common cause of flashers and floaters is posterior vitreous detachment (PVD), occurring in over 75% of people over the age of 65. This is the separation of the vitreous membrane from the retina, which occurs over time with ageing. It does not cause any pain, nor loss of vision. Highly myopic patients are also at increased risk. Referral to an ophthalmologist should take place within 24 hours to rule out retinal tears or detachment.

Migraine is incorrect - there is no headache described here and so this is unlikely. For some people, migraine auras can mimic flashes and floaters - they may experience strange ocular sensations - but the most likely cause here is posterior vitreous detachment.

Optic neuritis is also unlikely - there is no pain, nor any history of any previous disease to suggest this. In this patient, posterior vitreous detachment remains by far the most likely cause of his flashers and floaters.

Retinal detachment may be a complication of PVD, but again not as common as the PVD itself - this would present with sudden visual loss (whereas here, the fields and acuity are normal), often as a 'veil' covering the visual field. This requires urgent intervention from an ophthalmologist.

A retinal tear may also occur, without progressing to detachment. This would present with similar symptoms as the detachment but, on detailed examination, a tear would be visualised rather than complete detachment. This, again, requires intervention from an ophthalmologist.

Question:

A 78-year-old man presents to the emergency department with intense abdominal pain. He has not passed faeces or wind in the last 48 hours. When asked, he mentions that he has lost some weight recently and in the weeks preceding this event he has been feeling constipated. The team suspects a large bowel obstruction due to cancer and orders a CT scan, that shows a mass in the hepatic flexure.

Which one of the following surgical management plans is the most appropriate for the patient?

A.Hartmann's procedure

B.High anterior resection

C.Left hemicolectomy

D.Low anterior resection

E.Right hemicolectomy

Answer:Right hemicolectomy

Explanation:

Caecal, ascending or proximal transverse colon cancer → right hemicolectomy

Important for meLess important

The correct answer is right hemicolectomy. The patient presents with the symptoms of large bowel obstruction due to hepatic flexure cancer. Cancers of the cecum, ascending or a proximal third of the transverse colon are resected using a right hemicolectomy. The procedure involves removing the cecum, the ascending colon and the proximal third of the transverse colon. However, an extended right hemicolectomy may be executed for lesions on the hepatic flexure, including the whole middle colic territory.

Hartmann's procedure is executed in emergencies, such as bowel obstruction or perforation. This involves complete resection of the rectum and sigmoid colon with the formation of an end colostomy and the closure of the rectal stump. This can be revised later, with anastomosis of the two stumps. The mass here is at the hepatic flexure. Therefore the answer is a right hemicolectomy as removing the sigmoid would not help.

A high anterior resection is used to excise upper rectal tumours. It involves the resection of the proximal rectum and sigmoid colon, with the advantage of leaving the anal sphincter intact. This allows the creation of anastomoses between the descending colon and the lower rectum. Often a loop ileostomy is performed to defunction the colon to allow healing of the anastomoses. This will be reversed later when the anastomoses have healed. The patient has a mass in the hepatic flexure, not in the rectum, making this an incorrect answer.

A left hemicolectomy is used to excise tumours of the distal two-thirds of the transverse colon and descending colon. It involves removing the distal transverse colon, the descending colon and the sigmoid colon. The rectum is left intact and anastomosed with the proximal transverse colon, so the patient will not have a permanent stoma. The patient's mass is at the hepatic flexure (right transverse colon) making the choice of this procedure inappropriate.

A low anterior resection is used to approach low rectal tumours (less than 5cm from the anus). It involves excision of the distal colon, rectum and anal sphincters, resulting in a permanent end colostomy. The patient has a mass in the hepatic flexure, not in the rectum, making this an incorrect answer.

Question:

Which one of the following extra-intestinal manifestations of inflammatory bowel disease is much more common in ulcerative colitis than in Crohn's disease?

A.Pauciarticular arthritis

B.Osteoporosis

C.Episcleritis

D.Erythema nodosum

E.Primary sclerosing cholangitis

Answer:Primary sclerosing cholangitis

Explanation:

Ulcerative colitis - primary sclerosing cholangitis

Important for meLess important

Question:

A 28-year-old man presents to his general practitioner with six months of insidious onset lower back pain. The pain is worse in the morning and improves over the course of the day. There is no history of trauma, weight loss or bladder or bowel symptoms. He has no significant past medical history. He takes occasional ibuprofen, which seems to improve the pain. He works as a journalist and has travelled extensively in the last year in South Asia.

On examination, he has lower back tenderness. There are no neurological abnormalities.

Given the likely diagnosis, what is the most appropriate initial investigation to confirm a diagnosis?

A.Erythrocyte sedimentation rate

B.Interferon-gamma release assay

C.MRI whole spine

D.Plain radiography of the pelvis

E.HLA-B27

Answer:Plain radiography of the pelvis

Explanation:

Diagnosis of ankylosing spondylitis can be best supported by sacro-ilitis on a pelvic X-ray

Important for meLess important

Plain radiography of the pelvis is correct. The likely diagnosis is ankylosing spondylitis. The history suggests an inflammatory cause of back pain as evidenced by the insidious onset of low back pain, worse in the morning, improved by activity, relieved by NSAIDs in a person < 45 years of age. This view will include the sacroiliac joints. While plain radiography is less sensitive than MRI, it is the most appropriate initial investigation. Sacro-ilitis on plain radiography suggests a diagnosis of ankylosing spondylitis. It is graded by the New York criteria as outlined below:

Grade 0: normal

Grade I: some blurring of the joint margins

Grade II: minimal sclerosis with some erosion

Grade III: definite sclerosis on both sides of joint or severe erosions with the widening of joint space with or without ankylosis

Grade IV: complete ankylosis

ESR is incorrect. This is a non-specific marker of inflammation. While this may be supportive of a diagnosis of ankylosing spondylitis, it is not diagnostic.

Interferon-gamma release assay (IGRA) is incorrect. Although this man has travelled extensively in South Asia, there are no other suspicious features in the history to suggest a diagnosis of tuberculosis such as fever, night sweats and weight loss. In any case, a positive IGRA merely suggests exposure to TB (and can reflect either latent or active disease) and would therefore not be diagnostic.

MRI of the whole spine is incorrect. MRI can be used to diagnose axial spondyloarthritis and to demonstrate evidence of active inflammation. However, plain radiography is a more suitable initial investigation due to its cost and the ease with which it can be obtained.

HLA-B27 is incorrect. 90% of patients with ankylosing spondylitis will be HLA-B27 positive. However, 10% of unaffected patients will also be HLA-B27 positive. It is supportive of a diagnosis of ankylosing spondylitis but not diagnostic.

Question:

A 63-year-old man presents to his general practitioner complaining of increased tiredness and shortness of breath over the last 3 months. He has a past medical history of type two diabetes mellitus, mitral valve prolapse for which he has had a valve replacement, and heart failure.

On examination, the patient appears pale and visibly jaundiced. He has a respiratory rate of 21 breaths/min and a clear chest on auscultation. His abdomen is soft and non-tender. There is no peripheral oedema.

What is the most likely cause of this presentation?

A.Anaemia of chronic disease

B.Decompensation of chronic heart failure

C.Haemolytic anaemia

D.Pneumonia

E.Cholangiocarcinoma

Answer:Haemolytic anaemia

Explanation:

Prosthetic heart valves may result in haemolytic anaemia

Important for meLess important

This man presents with features of anaemia (fatigue, palpitations, shortness of breath) and features of haemolysis (jaundice, splenomegaly). Haemolytic anaemia is a condition resulting in the body prematurely destroying red blood cells, resulting in anaemia, which can be caused by the prosthetic mitral valve.

Anaemia of chronic disease is an important differential in this scenario as there is a history of chronic heart failure and features of anaemia. However, this does not explain the jaundice.

Decompensation of heart failure can present with worsening shortness of breath, reduced exercise tolerance, worsening fatigue, increased peripheral oedema, and a productive cough. It is unlikely to be the cause of this patient's symptoms as it does not cause jaundice, and there are no features of fluid overload (crackles on lung auscultation or peripheral oedema).

Pneumonia is an infection of the lung. It usually presents with a cough productive of purulent sputum, shortness of breath, fever, and chest pain. It would present more acutely than in this scenario, and would not cause jaundice.

Cholangiocarcinoma is a cancer of the bile duct. It presents with system features of malignancy such as weight loss and anorexia. It is a cause of painless jaundice, which the patient in this scenario has. However, he has no risk factors for cholangiocarcinoma - examples of these include diseases of the biliary tract, liver disease, and infections such as HIV and viral hepatitis.

Question:

A 44-year-old man is diagnosed with a duodenal ulcer. CLO testing performed during the gastroscopy is positive for Helicobacter pylori. What is the most appropriate management to eradicate Helicobacter pylori?

A.Lansoprazole + clindamycin + metronidazole

B.Lansoprazole + amoxicillin + clindamycin

C.Lansoprazole + amoxicillin + clarithromycin

D.Omeprazole + amoxicillin + clindamycin

E.Omeprazole + penicillin + metronidazole

Answer:Lansoprazole + amoxicillin + clarithromycin

Explanation:

H. pylori eradication:

PPI + amoxicillin + clarithromycin, or

PPI + metronidazole + clarithromycin

Important for meLess important

The BNF recommends a regimen containing amoxicillin and clarithromycin as first-line therapy

Question:

A 25-year-old gentleman is found to have a fracture of the distal scaphoid and a plaster of Paris cast is applied. Which of the following medications will increase the risk of osteonecrosis?

A.Azathioprine

B.Paracetamol

C.Codeine

D.Salbutamol

E.Prednisolone

Answer:Prednisolone

Explanation:

Steroids increase the risk of osteonecrosis. A fracture of the scaphoid carries a high risk of osteonecrosis already, nearly 100% at the proximal pole, and this requires surgery for bone grafting. Fractures of the talus and neck of femur also carry a high risk of osteonecrosis. None of the other medications are known to increase the risk of osteonecrosis.

Question:

A 32-year-old female presents to her GP. She is complaining of weakness, a headache and nausea. She has a past medical history of hypothyroidism, depression, migraine, hay fever and asthma. The GP orders some bloods:

Na+ 126 mmol/l

K+ 4.2 mmol/l

Urea 3.6 mmol/l

Creatinine 82 µmol/l

Which medication is most likely responsible for her symptoms?

A.Propranolol

B.Levothyroxine

C.Loratadine

D.Salbutamol

E.Fluoxetine

Answer:Fluoxetine

Explanation:

SSRIs are a cause of SIADH

Important for meLess important

Fluoxetine is a cause of SIADH. SIADH causes low sodium which can cause the headache, weakness and nausea.

The other medications do not cause a low sodium.

Question:

Randy is a 45-year-old male presenting with a new fever. He works as a farmer and noted fevers up to 39.6ºC over the past 72 hours with a dry cough. He has also been struggling to manage his sheep due to the ongoing headache and worsening muscle aches that have accompanied the fever. The headache was significant but was not associated with any neck stiffness or photophobia.

Randy does not note any other symptoms. He has not been in contact with anyone unwell and he has not been travelling out of the country recently.

Physical examination was otherwise unremarkable with only mild crackles heard on auscultation on his chest. No insect bites were noted. No lymphadenopathy was palpable.

Blood tests are as follow:

Hb 150 g/L Male: (135-180)

Female: (115 - 160)

Platelets 140 \* 109/L (150 - 400)

WBC 6.0 \* 109/L (4.0 - 11.0)

Na+ 140 mmol/L (135 - 145)

K+ 3.9 mmol/L (3.5 - 5.0)

Urea 6.0 mmol/L (2.0 - 7.0)

Creatinine 110 µmol/L (55 - 120)

Bilirubin 13 µmol/L (3 - 17)

ALP 90 u/L (30 - 100)

ALT 110 u/L (3 - 40)

AST 100 u/L (5-40)

Albumin 37 g/L (35 - 50)

What would be the likely organism causing the likely diagnosis?

A.Rickettsia prowazekii

B.Coxiella burnetti

C.Francisella tularensis

D.Legionella spp.

E.Bartonella henselae

Answer:Coxiella burnetti

Explanation:

Farmer, fever, transaminitis ?Q fever

Important for meLess important

Given that the patient is a farmer, this exposes him to zoonotic infections. The presence of fevers and associated transaminitis raises the suspicion for Q fever, caused by Coxiella burnetti. Its natural reservoir exists within cattle and sheep. It typically presents with fevers, headaches, fatigue and muscle aches. Diagnosis of this is often made by serological testing and is treated with doxycycline. Chronic Q-fever is possible and can present with endocarditis.

Francisella tularensis causes tularemia. This is less likely given the lack of risk of exposure to its natural vector, rabbits or deer. Also, this will tend to present with unilateral lymphadenopathy with associated skin ulcers at the site of inoculation.

Legionella spp. causes Legionnaires disease which presents with fevers and headaches. However, this is less likely given the lack of risk factors of exposure including recent repairs to water supplies and exposure to a known Legionnaires case. Also, this tends to cause a productive cough rather than a dry cough.

Bartonella henselae causes cat-scratch disease and this is not likely given the absence of lymphadenopathy or rash at the site of inoculation. Besides, there is no mention that he has been exposed to a cat.

Rickettsia prowazekii causes epidemic typhus. This typically occurs in overcrowded areas as the disease is spread by body lice. This is also typically associated with a generalized rash beginning at the trunk before spreading to the extremities ( sparing of face, palms and soles).

Question:

A 66-year-old man presents to his GP with progressive dysphagia. Initially this was only with solid food, but lately he is having trouble swallowing even soup. Which of the following investigations is the gold standard?

A.Manometry

B.Barium swallow

C.Endoscopy

D.CT

E.MRI

Answer:Endoscopy

Explanation:

This patient has the symptoms of oesophageal cancer. The gold standard investigation is endoscopy as it allows us to have a look at the tumour and take biopsies. To add onto this we can also use ultrasound endoscopy to look at the thickness of the tumour.

Manometry is a tool used to measure function of the lower oesophageal sphincter. Though this is an investigation used to assess swallowing difficulties it would not be helpful in a cancer situation as this patient presents. It is more likely used in symptoms of GORD.

Barium swallows are sometimes used to help with the diagnostic process of oesophageal cancer. However it only shows the shape of the inner lining of the oesophagus and cannot determine how far the cancer has spread. It is not the gold standard compared to endoscopy.

CT is a useful tool for staging oesophageal cancer, however it would not be the first-line gold standard diagnostic tool used. Same goes for MRI.

Question:

A 40-year-old man with a history of psychiatric problems and epilepsy comes for review. He complains that he is drinking excessive amounts of water and having to urinate frequently. He has not lost any weight and states that he is compliant with his current medications. Blood tests show the following:

Na+ 145 mmol/l

K+ 4.1 mmol/l

Urea 6.3 mmol/l

Creatinine 101 µmol/l

Glucose (random) 6.2 mol/l

Which one of the following medications is most likely to be responsible for this presentation?

A.Carbamazepine

B.Fluoxetine

C.Olanzapine

D.Sodium valproate

E.Lithium

Answer:Lithium

Explanation:

This patient has probably developed nephrogenic diabetes insipidus secondary to lithium therapy. Polyuria, polydipsia and a high-normal sodium are pointers towards this.

Question:

A 56-year-old man is brought to the Emergency Department. He works as a window cleaner. His colleague describes him suddenly falling from the ladder without warning. On admission he is conscious with a bradycardia of around 36/min. His blood pressure is 110/62 mmHg and he is well perfused with no signs of heart failure. An ECG is taken on account of his bradycardia:

© Image used on license from Dr Smith, University of Minnesota

A previous ECG taken four months ago was completely normal. What is the most likely diagnosis?

A.Sick sinus syndrome

B.Stokes-Adams attack with associated complete heart block

C.Myocardial infarction with new left bundle branch block

D.Second-degree atrioventricular block (Mobitz II)

E.Second-degree atrioventricular block (Mobitz I / Wenckebach)

Answer:Stokes-Adams attack with associated complete heart block

Explanation:

There are regular p waves at a rate of around 90 / min but they do not conduct. The ventricular escape rhythm has a rate of about 36 / min and has a right bundle branch block (RBBB) like morphology. The bizarre, wide, inverted T-waves can be seen in Stokes-Adams attacks and do not necessarily imply new ischaemia.

Question:

A 61-year-old man is seen in clinic due to numbness and tingling in his left hand. On examination he has weakness of elbow extension, metacarpophalangeal joint flexion and extension and distal interphalangeal joint flexion with all other movements preserved, all reflexes are normal and sensation is normal apart from reduced pin-prick sensation over the medial aspect of the hand. An MRI scan of the cervical spine is performed as a nerve lesion is suspected.

Which of the following pathologies is most likely to be found on the scan based on the clinical findings?

A.Disc herniation between C5 and C6

B.Disc herniation between C6 and C7

C.Disc herniation between C7 and T1

D.Facet joint hypertrophy between C6 and C7

E.Facet joint hypertrophy between C7 and T1

Answer:Disc herniation between C7 and T1

Explanation:

C8 is the ONLY cervical nerve root that comes out BELOW the vertebra

Important for meLess important

The scenario describes someone with a C8 radiculopathy evidenced by reduced sensation in the C8 dermatome (the medial side of the hand over the little finger) and weakness of the C8 myotome (flexion of the distal interphalangeal and metacarpophalangeal joints). The other options available correspond to the C6 or C7 roots and these are unaffected as evidenced by normal elbow flexion and thumb sensation (C6) and normal sensation over the middle finger (C7). Elbow extension is weak as it has roots from both C7 and C8 and so cannot be used alone to decide between the two levels clinically.

The C8 nerve root exits the spine below the C7 vertebra, being the only cervical nerve root which exits below a vertebra. The rest of the cervical nerve roots derive their name from the vertebra below them. The most common acute pathology causing a radiculopathy is a disc herniation and therefore this is the correct answer.

Question:

A 64-year-old man presents to the emergency department with abdominal pain that 'comes and goes' over the course of the past day. He is vomiting and hasn't been able to eat. On examination, he has scleral icterus. There is guarding in the right upper quadrant. His heart rate is 110bpm, respiratory rate 25/min, temperature 37.9ºC, BP 100/60 mmHg.

What is the most likely diagnosis?

A.Acute cholecystitis

B.Acute pancreatitis

C.Ascending cholangitis

D.Biliary colic

E.Mirizzi's syndrome

Answer:Ascending cholangitis

Explanation:

Charcot's cholangitis triad: fever, jaundice and right upper quadrant pain

Important for meLess important

The correct answer is ascending cholangitis. This patient is displaying Charcot's triad of fever, jaundice, and right upper quadrant (RUQ) pain, characteristic of ascending cholangitis. The most common cause of ascending cholangitis is gallstones, and this condition is most commonly seen in people with recurrent biliary colic. Acute cholangitis is a medical emergency and patients should be started on antibiotics and prepped for endoscopic retrograde cholangiopancreatography (ERCP).

Acute cholecystitis is an important differential to consider but is incorrect in this case. Acute cholecystitis refers to secondary infection after gallstone impaction. This can present in a very similar way, but without jaundice. Patients with cholecystitis are less at risk of complications such as sepsis and shock.

Acute pancreatitis is incorrect here. This is an important differential to consider in this case, as pancreatitis can present in a similar way to cholangitis. Classically pancreatitis presents with epigastric pain that radiates through to the back and gets better when sitting up. There will not typically be jaundice unless there is some form of biliary tree obstruction. An easy way to differentiate is to order a serum amylase or lipase that will be >3x normal in pancreatitis.

Biliary colic is incorrect here. The underlying cause of this patient's symptoms is a gallstone, leading to the typical colicky pain worst in the RUQ. However, the presence of secondary infective signs (pyrexia) and jaundice point toward a complication of this gallstone, namely cholangitis.

Mirizzi's syndrome is incorrect here. This is a rare complication whereby a gallstone lodged in the gallbladder neck compresses the rest of the biliary tree leading to cholestatic jaundice. This can look similar to ascending cholangitis, however, you wouldn't typically see infective symptoms or systemic compromise in Mirizzi's syndrome.

Question:

A man presents with a thunderclap headache, sudden in onset. He was seated when this occurred. On examination, he has signs of meningism with a stiff neck and photophobia. He has no fever. A CT scan is inconclusive and shows no signs of a subarachnoid haemorrhage (SAH). FBC is normal. You decide to perform a lumbar puncture 12 hours later. What findings in the CSF would prove that the patient has had a SAH?

A.Elevated white cell count specifically lymphocytes

B.Elevated white cell count specifically neutrophils

C.Red blood cells greater than 4 cells per mm³ but less than 10 cells per mm³

D.Breakdown products of RBC such as bilirubin

E.Red blood cells greater than 5 cells per mm³ but less than 20 cells per mm³

Answer:Breakdown products of RBC such as bilirubin

Explanation:

The presence of red blood cells in CSF may be due to traumatic tap. The presence of breakdown products of RBC in CSF is indicative of a SAH

Important for meLess important

The presence of RBC in CSF can be due to a traumatic tap which is why 3 samples are collected in 3 separate tubes. To obtain xanthochromia, the RBC must undergo lysis as the body breaks down the irritant (blood) in the meninges. There is nothing in the history to suggest meningitis.

Question:

A 25-year-old woman with a history of Graves' disease, for which she is treated with a 'block and replace' technique with levothyroxine, attends her GP complaining of heavy periods. She says she is compliant with her medication, and the GP believes her, as she regularly orders her medication and has never had an issue with compliance before.

If her heavy periods are due to a thyroid problem, which of the following thyroid function test (TFT) results fit best with this clinical picture?

A.High TSH + low free T4

B.High TSH + normal free T4

C.Normal TSH + normal free T4

D.Low TSH + high free T4

E.Low TSH + low free T4

Answer:High TSH + low free T4

Explanation:

Hyperthyroidism is associated with oligomennorhoea, or amennorhoea, whereas hypothyroidism is associated with menorrhagia

Important for meLess important

Hypothyroidism is a cause of menorrhagia. The TFT pattern in hypothyroidism will be high TSH and low free T4 (primary hypothyroidism). This would indicate she needs a higher dose of levothyroxine, so should be easily corrected. High TSH and normal free T4 indicates poor levothyroxine compliance, normal TSH and normal free T4 is normal, low TSH and high free T4 is hyperthyroidism. Low TSH and low free T4 is secondary hypothyroidism- this is extremely rare, and even rarer as she has Graves' disease and is taking levothyroxine.

Question:

A 30-year-old man presents to his GP with bilateral hearing loss that has developed over the last three hours associated with episodes of vertigo and vomiting. He also reports having an upper respiratory tract infection about a week ago.

On examination, he has visible horizontal nystagmus and veers to the right when asked to walk.

What is the most likely diagnosis?

A.Meniere's disease

B.Benign paroxysmal positional nystagmus (BPPV)

C.Viral labyrinthitis

D.Vestibular neuronitis

E.Vestibular schwannoma

Answer:Viral labyrinthitis

Explanation:

Viral labyrinthitis typically presents with sudden vertigo and hearing can be affected. A viral infection often precedes its presentation

Important for meLess important

The affected hearing and previous viral infection strongly point towards a diagnosis of viral labyrinthitis over vestibular neuronitis.

A diagnosis of Meniere's disease is unlikely here given the acute nature. Tinnitus is also a very common feature of Meniere's as well as an aural fullness.

BPPV nystagmus is usually associated with moving in bed.

Vestibular schwannoma is often associated with other focal neurology and the hearing loss is usually unilateral.

Question:

Sally a 4-year-old girl has presented to the GP with delayed speech development. Which of the following would lead to an increased risk of developing autistic spectrum disorder?

A.Exposure to the MMR vaccine

B.A trinucleotide repeat disorder of the X chromosome

C.High birth weight

D.Alcohol Consumption during pregnancy

E.Female sex

Answer:A trinucleotide repeat disorder of the X chromosome

Explanation:

Fragile X is associated with autism

Important for meLess important

Fragile X syndrome is a trinucleotide repeat disorder. Learning difficulties and autistic spectrum disorder have both been associated with fragile X, particularly in males.

Contrary to the media, the latest guidance shows no link between autistic spectrum disorder and the MMR vaccine

A low birth weight has been associated with an increased risk of autistic spectrum disorder, not a high birth weight

There is no link between childhood obesity and autistic spectrum disorder

There is an increased risk of autistic spectrum disorder in males, not females, with a male: female ratio of around 4:1

Question:

A 58-year-old man with predictable chest pain on exertion sees his GP to discuss medication. He has already undergone investigations and was diagnosed with angina. The GP starts him on aspirin and a statin.

What would be the most appropriate prophylactic medication?

A.Amlodipine

B.Bisoprolol

C.Isosorbide mononitrate

D.Modified-release nifedipine

E.Sublingual glyceryl trinitrate (GTN)

Answer:Bisoprolol

Explanation:

A beta-blocker or a calcium channel blocker is used first-line to prevent angina attacks

Important for meLess important

NICE recommends using either a beta-blocker or a rate-limiting calcium channel blocker first-line for the treatment of angina. In this scenario, bisoprolol would be the most appropriate medication.

Amlodipine is not a rate-limiting calcium channel blocker so would not be used as first-line therapy. They are long-acting dihydropyridine calcium channel blockers. It would be appropriate to use these if he was already taking a beta-blocker, as beta-blockers should not be prescribed alongside rate-limiting calcium channel blockers due to the risk of complete heart block.

GTN is a short-acting nitrate used to abort angina attacks, not as prophylaxis.

Isosorbide mononitrate is a long-acting nitrate that may be used for angina prophylaxis but is not the first-line. It may be added to a patient's treatment regime if control is poor.

Modified-release nifedipine is also not a rate-limiting calcium channel blocker and for the same reason as amlodipine would not be used as first-line medications.

Question:

A 34-year-old Afro-Caribbean man presents to his GP with a 4-week history of fever, joint pains, lymphadenopathy and a tender red rash on his legs.

Cardiovascular, respiratory, neurological and abdominal examinations are unremarkable. The rash on the shins is in keeping with erythema nodosum.

Relevant blood tests are shown below:

Hb 139 g/L Male: (135-180)

Female: (115 - 160)

Platelets 377 \* 109/L (150 - 400)

WBC 10.8 \* 109/L (4.0 - 11.0)

Urea 5.5 mmol/L (2.0 - 7.0)

Creatinine 78 µmol/L (55 - 120)

CRP 17 mg/L (< 5)

Calcium 2.35 mmol/L (2.1-2.6)

A chest x-ray shows bilateral hilar lymphadenopathy.

What is the most appropriate management?

A.Azathioprine

B.Cyclophosphamide

C.Methotrexate

D.Monitoring

E.Prednisolone

Answer:Monitoring

Explanation:

The majority of patients with sarcoidosis get better without treatment

Important for meLess important

Monitoring is correct. This patient is suffering from Lofgren's syndrome - a pattern of sarcoidosis symptoms encompassing fever, joint pain, erythema nodosum, lymphadenopathy and bilateral hilar lymphadenopathy. Lofgren's syndrome has a good prognosis and does not usually require any treatment; it will self-resolve within a year or so. Indications for immunosuppressive treatment include splenic/hepatic/renal/cardiac involvement, lupus pernio, hypercalcemia, eye/CNS involvement or deteriorating pulmonary function tests or deteriorating chest x-ray changes.

Azathioprine is incorrect. This patient is exhibiting symptoms of sarcoidosis. Azathioprine is used in neurosarcoidosis or in pulmonary sarcoidosis that has not been responsive to steroid therapy. There are no indications to initiate treatment in this case, and if there were then oral steroids would be the first-line treatment.

Cyclophosphamide is incorrect. This patient is exhibiting symptoms of sarcoidosis. Cyclophosphamide is used in sarcoidosis only if neurological involvement is present that has been previously unresponsive to steroid therapy. There are no indications to initiate treatment in this case, and if there were then oral steroids would be the first-line treatment.

Methotrexate is incorrect. This patient is exhibiting symptoms of sarcoidosis. Methotrexate may be used in progressive pulmonary sarcoidosis that has not responded to steroid therapy. There are no indications to initiate treatment in this case, and if there were then oral steroids would be the first-line treatment.

Prednisolone is incorrect. This patient is exhibiting symptoms of sarcoidosis but has no indications to initiate treatment. Indications include splenic/hepatic/renal/cardiac involvement, lupus pernio, hypercalcemia, eye/CNS involvement or deteriorating pulmonary function tests or deteriorating chest x-ray changes.

Question:

A 27-year-old man with a history of depression and coeliac disease presents with an itchy rash on his buttocks:

© Image used on license from DermNet NZ

What is the most likely diagnosis?

A.Linear IgA dermatosis

B.Neurotic excoriations

C.Scabies

D.Dermatitis herpetiformis

E.SSRI-associated dermatitis

Answer:Dermatitis herpetiformis

Explanation:

Question:

A 69-year-old woman with a history of well-controlled temporal arteritis presents to the emergency department following a collapse at home, and is complaining of severe persisting abdominal pain. Her husband reports that she has been following her daily steroid regime, and that she has recently been recovering from 'a nasty bout of flu'. Initial observations and examination identify a low-grade fever and generalised abdominal tenderness, with a GCS of 13/15.

Which of the following acid-base imbalances would be most expected in this patient, given the likely underlying pathology?

A.Hyperkalaemic metabolic acidosis

B.Hyperkalaemic metabolic alkalosis

C.Hyperkalaemic respiratory alkalosis

D.Hypokalaemic metabolic acidosis

E.Hypokalaemic respiratory acidosis

Answer:Hyperkalaemic metabolic acidosis

Explanation:

Addison's disease/adrenal insufficiency can cause hyperkalaemic metabolic acidosis

Important for meLess important

It is important to be aware of adrenal insufficiency in patients with chronic steroid-controlled conditions presenting to the emergency department, especially with the often-vague presentation of fever, abdominal pain and collapse. Despite her husband saying she has been following her regime, you should remember the external triggers which often cause adrenal insufficiency, mainly recent infection, ischaemic attacks, or intoxication.

Because of the lack of sufficient adrenal function, there is loss of aldosterone function, causing less sodium but increased potassium retention. The acidosis is also due to loss of aldosterone function, particularly in the distal renal tubules as more sodium is being excreted through the kidneys, causing increased H+ retention.

Question:

John, a 35-year-old gentleman on the gastrointestinal ward has been suffering from melaena for a week. His haemoglobin level today is 60g/L and the consultant has requested that you transfuse John a unit of packed red blood cells. Within minutes of starting the transfusion, John complains of itching and stinging sensations on his trunk. On examination, you observe red raised welts over his abdomen and chest. His blood pressure is unaltered from prior to the transfusion at 130/70mmHg, his temperature is 37ºC and there are no signs of dyspnoea, wheezing, stridor or angioedema. Which one of the following management options is the most appropriate?

A.Temporary transfusion termination and an antihistamine

B.Permanent transfusion termination, generous fluid resuscitation with saline solution and inform the lab

C.Permanent transfusion termination, intramuscular adrenaline, antihistamines, corticosteroids, bronchodilators and supportive care

D.Temporary transfusion termination and an antipyretic

E.Permanent transfusion termination and high dose immune globulin therapy

Answer:Temporary transfusion termination and an antihistamine

Explanation:

During blood transfusions, minor allergic reactions may be managed by temporarily stopping the transfusion and giving an antihistamine

Important for meLess important

This patient is suffering from an urticarial rash following blood transfusion, hence the transfusion should be stopped and an antihistamine given. Once the symptoms resolve, the transfusion may be continued with no need for further workup.

Additional IM adrenaline, corticosteroids, bronchodilators and supportive care would only be required for symptoms of anaphylaxis or severe allergic reaction. This patient does not have angioedema or signs of breathing difficulties.

Permanent termination with generous fluid resuscitation and informing the lab is not appropriate and is the management of acute haemolytic transfusion reaction. There is no fever, abdominal/chest pain or hypotension to indicate this complication.

Temporary transfusion termination with an antipyretic is used to treat non-haemolytic febrile reaction, however, there is no fever here to indicate this complication.

High dose immunoglobulin is used to treat post-transfusion purpura, which is a rare, delayed transfusion reaction

(BMJ Best Practice)

Question:

A 23-year-old female calls 111 due to worsening diarrhoea. She has had 5 episodes of watery diarrhoea in the past 24 hours since flying back from Colombia. Her diarrhoea is associated with severe abdominal cramps, nausea and retching, and feeling faint. She denies any blood in her stool.

What is the most likely causative organism for her symptoms?

A.Salmonella typhi

B.Campylobacter jejuni

C.Clostridium perfringens

D.Escherichia coli

E.Staphylococcus aureus

Answer:Escherichia coli

Explanation:

E. coli is the most common cause of travellers' diarrhoea

Important for meLess important

This patient has a history which correlates strongly with infection with E. coli. She has non-bloody, watery diarrhoea alongside abdominal cramping and nausea. Her history of returning from Columbia correlates with this diagnosis as this is deemed amongst the 'high risk' areas for contracting travellers' diarrhoea (other locations include Latin America, Middle East, and most of Africa).

Salmonella typhi presentation varies substantially. It has an incubation period of 10-20 days and presents with fever, headache, myalgia, nausea, and weight loss. In 50% cases, there is hepatosplenomegaly. There may be diarrhoea or constipation early in the symptom onset but this is not characteristic.

Campylobacter jejuni usually presents with fever, cramping abdominal pain and diarrhoea which is often bloody. Patients may report feeling generally unwell and complain of myalgia prior to the onset of abdominal pain and diarrhoea.

Clostridium perfringens is the 3rd most common cause of food poisoning caused by meat being left uncovered for too long or incorrectly cooked. It presents with abdominal pain, diarrhoea, and fever and will resolve in a few days in healthy individuals.

Staphylococcus aureus has a short incubation period and symptom onset is usually within 4 hours of ingestion. Patients present with abdominal pain and diarrhoea. Symptoms are usually self-limiting within 24 hours. This toxin has a high salt tolerance and is commonly found in ham, milk, and cheeses.

Bacillus cereus is a common organism causing stomach upset. The most common vignette is a patient presenting after eating incorrectly reheated rice. The organism releases two types of toxin which have different presentations. Patients may present with abdominal pain, diarrhoea, and nausea around 6 to 15 hours after ingestion or with vomiting and nausea within 30 minutes to 6 hours after ingestion. Symptoms in both instances will usually subside after 24 hours.

Question:

A 26-year-old woman presents to the sexual health clinic with a 2 week history of purulent vaginal discharge. Microscopy of an endocervical swab sample shows Gram-negative diplococci. Tests for other pathogens are negative. The patient has no comorbidities or allergies. Which of the following antibiotic choices is most appropriate?

A.Oral doxycycline

B.Oral metronidazole

C.IM benzylpenicillin

D.IM ceftriaxone

E.Oral erythromycin

Answer:IM ceftriaxone

Explanation:

Intramuscular ceftriaxone is the treatment of choice for Gonorrhoea

Important for meLess important

Question:

A 55-year-old woman presents with progressively worsening dyspnoea on exertion for the past few years. She also noticed that she requires more pillows for the past one year when she sleeps to prevent her from getting breathless. However, she recently wakes up in the middle of the night feeling breathless even though she uses three pillows to sleep. On auscultation, a loud first heart sound with an opening snap and a diastolic murmur can be heard.

Based on the most likely diagnosis, what is the most common cause of this patient's condition?

A.Degenerative calcification of the valve

B.Congenital valve deformity

C.Past history of rheumatic fever

D.Myocardial infarction

E.Carcinoid syndrome

Answer:Past history of rheumatic fever

Explanation:

Rheumatic fever is the most common cause of mitral stenosis

Important for meLess important

This patient suffers from progressive cardiac failure secondary to mitral stenosis. She presents with exertional dyspnoea, orthopnoea and paroxysmal nocturnal dyspnoea, in keeping with left-sided heart failure. Findings upon auscultation of the heart are in keeping with mitral stenosis, which is most commonly caused by rheumatic fever.

Question:

A 29-year-old man presents to the Emergency Department with severe right lower quadrant pain and 7 episodes of diarrhoea in the last 24 hours. His observations are blood pressure 100/75 mmHg, heart rate 85 bpm, respiratory rate 15 breaths per minute, temperature 38.0ºC. He has a past medical history of Crohn’s disease and is allergic to aspirin. You suspect this is a Crohn’s flare-up.

Which medication should be avoided in the management of this patient?

A.Azathioprine

B.Mercaptopurine

C.Methotrexate

D.Prednisolone

E.Sulfasalazine

Answer:Sulfasalazine

Explanation:

Patients who are allergic to aspirin may also react to sulfasalazine

Important for meLess important

This patient should not be given sulfasalazine as they have an allergy to aspirin. Sulfasalazine is a salicylate drug, like aspirin. Patients who have aspirin hypersensitivity should not be given these drugs.

The rest of the drugs mentioned are not contraindicated with an aspirin allergy.

Question:

A 26-year-old man presents to the emergency department having been brought in by police after being found in the street naked and shouting at passers-by about the coming of god, and of a government plot to infect the entire population with a virus through the water supply. The police detained him and brought him to the hospital. He is not known to secondary care services. An illicit drug screen is negative.

He was seen by the psychiatry liaison team who admit him under Section 2 of the Mental Health Act for assessment of a first psychosis.

What is the strongest risk factor for this patient's condition?

A.Black Caribbean ethnicity

B.History of severe depression

C.Prolonged cannabis use

D.Prolonged use of LSD

E.Uncle with schizophrenia

Answer:Uncle with schizophrenia

Explanation:

Family history is the strongest risk factor for psychotic disorders

Important for meLess important

Uncle with schizophrenia is the correct answer. This patient has presented with psychosis, likely a result of an underlying psychotic disorder such as schizophrenia. Family history is by far the strongest risk factor for psychotic disorders. The risk of developing schizophrenia, for example, is 10-15% if you have a parent with the condition vs. 1% in the general public.

Black Caribbean ethnicity is incorrect. This is a risk factor for psychotic illness, with a risk ratio (RR) of 5.4. However, family history is a much greater risk factor.

History of severe depression is incorrect. Mood disorders are considered a risk factor for psychotic illness. However, family history is by far the strongest risk factor.

Prolonged cannabis use is incorrect. While cannabis use has been linked to psychotic illness, with a RR of 1.4, and has been shown to induce psychosis in some patients, family history is a much greater risk factor for developing psychotic illnesses such as schizophrenia.

Prolonged use of LSD is incorrect. Psychoactive substances such as LSD have been shown to induce psychosis in some (termed 'drug-induced psychosis'), and it is thought that prolonged use of highly psychoactive substances such as LSD increases the risk of developing psychotic disorders. However, family history is by far the greatest risk factor for psychotic disorders.

Question:

A 42-year-old woman presents to the emergency department with a 2-week history of diffuse itching, nausea, and generalised abdominal pain. She has a past medical history of epilepsy and rheumatoid arthritis.

On examination, she appears jaundice and has generalised abdominal tenderness, but no rebound or guarding. Her blood tests are below.

Bilirubin 52 µmol/L (3 - 17)

ALP 308 u/L (30 - 100)

ALT 54 u/L (3 - 40)

Albumin 42 g/L (35 - 50)

What is the single most likely medication to be causing this picture?

A.Methotrexate

B.Nitrofurantoin

C.Oral contraceptive pill

D.Phenytoin

E.Sodium valproate

Answer:Oral contraceptive pill

Explanation:

The oral contraceptive pill is associated with drug-induced cholestasis

Important for meLess important

Methotrexate is used as a disease-modifying agent and can cause fibrosis in the liver and lung and liver cirrhosis, rather than cholestasis.

Nitrofurantoin can work against gram-positive and gram-negative antibiotics and is often the first-line treatment for uncomplicated urinary tract infections. Unfortunately, a potential side effect is an acute hepatitis and hepatic failure, rather than cholestasis.

The clinical scenario describes a classic cholestatic picture with hyperbilirubinemia, jaundice, and pruritus. The oral contraceptive pill can cause drug-induced cholestasis.

Phenytoin and sodium valproate can both be used as anti-convulsant agents but can cause hepatocellular liver damage rather than cholestasis.

Question:

Maria, an 11-year-old girl, has been rushed to the Children's Assessment Unit with a potential seizure. Her dad filmed the episode and show's you a video in which she has clonic, jerking movements that initially begin in her hand and then move proximally up the arm.

In what type of epilepsy is this presentation usually seen?

A.Temporal lobe seizures

B.Frontal lobe seizures

C.Occipital lobe seizures

D.Parietal lobe seizures

E.Juvenile myoclonic epilepsy

Answer:Frontal lobe seizures

Explanation:

Jacksonian movement (clonic movements travelling proximally) indicates frontal lobe epilepsy

Important for meLess important

Jacksonian movements are a feature of frontal lobe epilepsy.

Temporal lobe seizures are associated with aura, lip smacking and clothes plucking.

Occipital seizures are associated with visual abnormalities.

Parietal seizures are associated with sensory abnormalities.

Juvenile myoclonic epilepsy is a genetic generalised epilepsy syndrome including absence, myoclonic and generalised tonic-clonic seizures.

Question:

Ms. Barnaby is a 60-year-old female presenting with palpitations lasting 20 minutes. She is otherwise asymptomatic. This is the first time she has experienced these symptoms.

Her past medical history includes hypertension and type 2 diabetes.

Her blood pressure is 120/80mmHg, her heart rate is 160 beats per minute, all of her other observations are within normal range.

A first ECG demonstrates atrial fibrillation with fast ventricular response.

Several minutes later Ms. Barnaby reports a resolution of her symptoms and a repeat ECG demonstrates normal sinus rhythm. After a period of observation, she remains asymptomatic.

Which of the following options is most appropriate to include in Ms. Barnaby's discharge plan?

A.Apixaban

B.Enoxaparin

C.Unfractionated heparin

D.No anticoagulation necessary

E.Warfarin

Answer:Apixaban

Explanation:

A single episode of paroxysmal atrial fibrillation, even if provoked, should still prompt consideration of anticoagulation

Important for meLess important

The clinical history describes a single episode of paroxysmal atrial fibrillation in a clinically stable patient. In all atrial fibrillation patients, due to the risk of stroke, there is a need to consider the therapeutic benefit of anticoagulation alongside the potential adverse effects of bleeding. Several tools are used to calculate these risks including CHA2DS2VASc and ORBIT scores.

The patient described has a CHA2DS2VASc score of 3 and an ORBIT score of 0, indicating a need to consider anticoagulation. Even though this was a single episode of paroxysmal atrial fibrillation which self-resolved without pharmacotherapy or electrical cardioversion there was no known correctable precipitant and therefore current guidance still states that anticoagulation must be considered.

Current guidance supports the use of direct oral anticoagulants (DOACs) as first-line therapy for anticoagulation in patients with atrial fibrillation. In this patient, there are no identifiable contraindications to this. Therefore, apixaban is the most appropriate choice.

Enoxaparin is an example of low molecular weight heparin delivered subcutaneously that is often used for prophylaxis and treatment of venous thromboembolism in hospitalised patients. It is not typically used as a first-line anticoagulant in newly diagnosed atrial fibrillation. Therefore it is not the most appropriate choice on this occasion.

Unfractionated heparin is often used for the same indications as enoxaparin, however is the preferred agent in those with renal impairment. It is incorrect for the same reasons as enoxaparin.

As described above, it would be inappropriate to not commence anticoagulation in this patient due to the potential stroke risk.

Warfarin is often used as prophylactic anticoagulation in those with atrial fibrillation. However, DOACs are typically preferred due to the reduced need for therapeutic monitoring. Additionally, when starting warfarin therapy additional anticoagulation with low molecular weight heparin is required for several days due to an acute prothrombotic effect (caused by antagonistic effects on proteins C and S).

Question:

Which of the following statements is most accurate regarding the usefulness of cervical spine radiographs (X-rays) in the assessment of degenerative cervical myelopathy (DCM)?

A.Cervical spine radiographs should be obtained in all patients suspected of having DCM

B.Where DCM is suspected, AP (anteroposterior), lateral and oblique cervical spine radiographs should be requested

C.Cervical spine radiographs are a useful first line investigation where a diagnosis of DCM is suspected

D.Cervical spine radiographs have a low sensitivity but high specificity for DCM

E.Cervical spine radiographs cannot diagnose DCM

Answer:Cervical spine radiographs cannot diagnose DCM

Explanation:

Radiographs are of limited value where a diagnosis of degenerative cervical myelopathy is suspected [1] as they cannot visualise the soft tissue, such as the spinal cord.

Spine radiographs have a high sensitivity, but limited specificity to diagnose most spinal conditions. Oblique spine radiographs are usually requested in the lumbar spine region to pick up defects in the pars interarticularis. They have no value in setting of DCM.

The finding of spondylosis is common in spinal x-rays of adults over 40 [2]. Its absence does not exclude neural compression.

Degenerative Cervical Myelopathy [DCM] is spinal cord compression due to degenerative changes of the surrounding spinal structures; e.g. from disc herniation, ligament hypertrophy or calcification, or osteophytes. Therefore in order to visualise these structures, a MRI is gold standard and first line.

Again the presence of such degenerative changes is common on MRI; in one study, 57% of patients older than 64 years of age had disc bulging, though only 26% had spinal cord compression [3]. Therefore a diagnosis of DCM requires the finding of MRI compression in concert with appropriate signs and symptoms.

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Question:

A 19-year-old man presents to the emergency department with right lower quadrant pain that radiated from his belly button. A diagnosis of appendicitis is suspected and he is assessed for surgery. He has no previous medical history, drinks about 13 units a week and smokes 5 cigarettes a day. He currently lives at home with his parents and works as a plumber 4 days a week.

What is his current American Society of Anesthesiologists (ASA) classification?

A.ASA I

B.ASA II

C.ASA III

D.ASA IV

E.ASA V

Answer:ASA II

Explanation:

Currently smoking will class you as grade 2 on the American Society of Anesthesiologists classification

Important for meLess important

This patient has an ASA grade of 2 due to his smoking and drinking history. Any current smoker or social alcohol drinker is counted as grade 2. To be classed as grade 1, you have to be a healthy, non-smoking, non/minimal alcohol user.

Question:

A 22-year-old man has undergone an inguinal hernia repair. Seven days later he presents with an erythematous and tender wound that is discharging a purulent material. What is the most likely cause?

A.Infection with Staphylococcus aureus

B.Discharging haematoma

C.Infection with Pseudomonas

D.Infection with Streptococcus pyogenes

E.Infection with Bacteroides

Answer:Infection with Staphylococcus aureus

Explanation:

In this setting Staphylococcus aureus Infection is the most likely cause. In the UK between 2010 and 2011 the commonest cause of wound infection was enterobacter infections (usually following cardiac or colonic surgery). 23% of infections were due to Staph aureus, which fits the scenario above. Infection with the other organisms including strep pyogenes was much rarer.

Question:

A 60-year-old woman presented to the emergency department following a seizure. Her husband witnessed the seizure and noted that all 4 of her limbs were jerking during the event and she that was incontinent of urine. Her seizures have terminated but she remains significantly confused.

He mentions that she had been recently diagnosed with lung cancer 6 weeks ago. Given her low mood following her diagnosis, she was started on an antidepressant. Since then, she has been feeling nauseous and fatigued but had put this down to her depression.

Her physical examination revealed moist mucous membranes. Her heart rate was 90 beats/minute and her blood pressure was 120/70mmHg.

Blood tests were performed and the results were:

Na+ 115 mmol/L (135 - 145)

K+ 4.2 mmol/L (3.5 - 5.0)

Urea 6.5 mmol/L (2.0 - 7.0)

Creatinine 110 µmol/L (55 - 120)

Calcium 2.35 mmol/L (2.1-2.6)

Phosphate 1.0 mmol/L (0.8-1.4)

Magnesium 0.85 mmol/L (0.7-1.0)

Random cortisol 600nmol/L >350nmol/L

Thyroid-stimulating hormone (TSH) 4.0 mU/L (0.5-5.5)

Plasma osmolality 235 mOsm/kg 285-295

Urine osmolality 335mOsm/kg 50-1200 mOsm/kg

Urinary sodium 35 mOsm/kg <20mOsm/kg

What treatment should be started given her symptoms?

A.0.9% sodium chloride solution

B.Demeclocycline

C.Tolvaptan

D.Strict 1L fluid restriction

E.3% sodium chloride solution

Answer:3% sodium chloride solution

Explanation:

Hypertonic saline is usually indicated in patients with acute, severe, symptomatic hyponatraemia (< 120 mmol/L)

Important for meLess important

The diagnosis of lung cancer and the initiation of a new antidepressant should always raise the suspicion for underlying hyponatremia. The presence of seizures with this indicates that this is a severe case of hyponatremia. Looking at the remainder of her blood tests, the likely underlying cause is SIADH.

Hypertonic saline is normally the first-line treatment in severe hyponatremia and should be initiated in a high-dependency unit. Normally a bolus of 150mls of 3% sodium chloride is used with repeat blood tests performed 30 minutes after the first bolus. A 2nd bolus can be performed if an increase of 5mmol/L of sodium is not achieved.

0.9% sodium chloride is used after the boluses of 3% sodium chloride. The aim at this stage is to raise sodium levels by 10mmol/L over the first 24 hours and 8mmol/L for every 24 hours after that.

Fluid restriction should be initiated in the setting of mild hyponatremia but will not correct this severe hyponatremia sufficiently to prevent morbidity. 3% hypertonic saline would be more appropriate as this will provide the necessary correction more quickly.

Demeclocycline and tolvaptan tend to be used in the setting of chronic hyponatremia that is not correcting with fluid restriction and slow sodium tablets. Its use is normally not recommended in severe hyponatremia and is only initiated under the guidance of endocrinology.

Question:

A 25-year-old woman presents to the emergency department with periorbital oedema, erythema, and drainage that is worsening in her left eye. Mild proptosis is seen on examination.

A point of care ultrasound is performed to investigate her symptoms further. The modified ocular ultrasound of her left eye demonstrates prominence and oedema of the retro-orbital soft tissue with echogenic fat.

What is the management for this patient given the underlying diagnosis?

A.Intravenous antimicrobial

B.No antimicrobial

C.Oral antimicrobial

D.Topical antimicrobial

E.Topical corticosteroids

Answer:Intravenous antimicrobial

Explanation:

Patients with orbital cellulitis require admission to hospital for IV antibiotics due to the risk of cavernous sinus thrombosis and intracranial spread

Important for meLess important

Intravenous antimicrobial is required in hospitals for patients with orbital cellulitis due to the risk of cavernous sinus thrombosis and intracranial spread. All patients with a clinical diagnosis of orbital cellulitis MUST be admitted with an ophthalmic opinion sought as soon as possible.

Oral antimicrobial is not sufficient in this situation. Orbital cellulitis is conventionally managed by intravenous antibiotic therapy and is a medical emergency that, if not treated urgently, may lead to blindness and even death.

No antimicrobial is inappropriate in this situation given that orbital cellulitis is a medical emergency that, if not treated urgently, may lead to blindness and even death. It necessitates prompt treatment with intravenous antibiotics.

Topical antimicrobial is not sufficient in this situation. Orbital cellulitis is conventionally managed by intravenous antibiotic therapy and is a medical emergency that, if not treated urgently, may lead to blindness and even death.

Topical corticosteroids are unlikely to be that effective. The use of oral corticosteroids however can help in reducing inflammation with less residual proptosis and restrictions in extraocular movement during recovery. Intravenous antibiotic therapy remains first-line and must be initiated promptly in this medical emergency.

Question:

A 66-year-old man with a change in bowel habit is referred via the 2 week-wait colorectal cancer referral scheme. After further questioning, he complains of tenesmus, loss of weight and a change in bowel habit over the last 3 months. He is sent for a colonoscopy.

What is the most appropriate advice to prepare this man for the procedure he will undergo?

A.No preparation required

B.Laxatives required the day before the examination

C.Laxatives required on the day of the examination

D.Do not eat for 48 hours before the examination

E.Do not eat for 72 hours before the examination

Answer:Laxatives required the day before the examination

Explanation:

Colonoscopy requires bowel prep

Important for meLess important

This question is asking about the correct preparation for a patient before a colonoscopy. Therefore the correct response is that the patient will require laxatives the day before the colonoscopy. All of the other options are incorrect.

Patients are required not to eat for 24 hours before the examination and this not eating for 48 or 72 hours is incorrect.

Question:

A 62-year-old man presents to his general practitioner for a diabetic review. He was recently diagnosed with diabetes and has trialled lifestyle changes. Today, his HbA1c is 58 mmol/mol. At the time of diagnosis, his HbA1c was 51 mmol/mol.

His past medical history comprises chronic kidney disease - with an estimated glomerular filtration rate (eGFR) of 22mL/minute/1.73 m2 - and chronic pancreatitis. He recently underwent a percutaneous coronary intervention.

What is the most appropriate management option?

A.Book another appointment in six months

B.Prescribe canagliflozin

C.Prescribe gliclazide and then canagliflozin

D.Prescribe metformin

E.Prescribe metformin and then canagliflozin

Answer:Prescribe canagliflozin

Explanation:

T2DM initial therapy: if metformin is contraindicated + patient has a risk of CVD, established CVD or chronic heart failure → SGLT-2 monotherapy

Important for meLess important

The correct answer is prescribe canagliflozin. This is a patent with a diagnosis of type 2 diabetes mellitus who has trialled lifestyle changes, and proved ineffective as shown by the HbA1c. He recently underwent a percutaneous coronary intervention, indicating established cardiovascular disease. Metformin is contraindicated in his case due to his severe chronic kidney disease. Hence, SGLT-2 inhibitors should be introduced as monotherapy, as per NICE guidelines.

The NICE guidelines suggest that all patients with chronic heart failure or established atherosclerotic cardiovascular disease, such as stable angina, in this case, should be offered an SGLT2 inhibitor ('flozin') as monotherapy if metformin is contraindicated. This class of drugs has been shown to have a clear cardiovascular benefit for those with these conditions. Hence, dapagliflozin is the right option.

Book another appointment in six months is an incorrect option. This patient's HbA1c has risen to 58 mmol/mol despite lifestyle changes. This indicates a suitable medication should be added now, rather than in six months.

Prescribe gliclazide and then canagliflozin. NICE guidelines suggest that those patients with established cardiovascular disease and who cannot tolerate metformin should be prescribed SGLT-2 monotherapy rather than SGLT-2 monotherapy with another drug.

Prescribe metformin and prescribe metformin and then canagliflozin are incorrect. This patient's estimated glomerular filtration rate (eGFR) is 22 mL/minute/1.73 m2, indicating severe chronic disease. Metformin cannot be prescribed in this category of patients.

Question:

A 65-year-old man who has recently been diagnosed with Parkinson's disease comes for review. He has been prescribed Sinemet (co-careldopa) by his neurologist. Unfortunately he is significantly troubled by nausea. What is the most appropriate anti-emetic to prescribe?

A.Metoclopramide

B.Haloperidol

C.Domperidone

D.Prochlorperazine

E.Cyclizine

Answer:Domperidone

Explanation:

Cyclizine is an antihistamine which, like prochlorperazine, may exacerbate Parkinson's disease.

Question:

A 38-year-old man presents to his GP with difficulty swallowing that he has been experiencing for about a month. He has difficulty with solid food but he is managing liquids. He has no abdominal or chest pain, no weight loss or night sweats and no change to his voice.

His past medical history is significant for COPD and ulcerative colitis and he takes azathioprine and a tiotropium/olodaterol inhaler. He has a 20-pack-year smoking history and drinks alcohol occasionally.

ENT and abdominal examinations are unremarkable.

What is the most appropriate action?

A.Reassure and give red flag advice

B.Refer for non-urgent upper gastrointestinal endoscopy

C.Refer for same-day assessment in the medical assessment unit

D.Refer for urgent CT thorax and abdomen

E.Refer for urgent upper gastrointestinal endoscopy

Answer:Refer for urgent upper gastrointestinal endoscopy

Explanation:

New-onset dysphagia is a red flag symptom that requires urgent endoscopy, regardless of age or other symptoms

Important for meLess important

Refer for urgent upper gastrointestinal endoscopy is correct. This patient is presenting with dysphagia which is a red flag for oesophageal cancer irrespective of age and the presence of any other red flag symptoms. This patient needs investigating with an oesophagogastroduodenoscopy (OGD) within 2 weeks. Another scenario that requires an urgent OGD for oesophageal cancer is a patient over 55 with weight loss and either upper abdominal pain, dyspepsia or reflux.

Reassure and give red flag advice would be incorrect. Dysphagia requires an urgent OGD regardless of the presence or absence of other red flag symptoms for oesophageal cancer.

Refer for non-urgent upper gastrointestinal endoscopy would be appropriate for patients who do not meet the referral criteria for an urgent suspected cancer (within 2 weeks) OGD but still have signs and symptoms suggestive of oesophageal cancer. This includes patients aged over 55 with treatment-resistant dyspepsia, upper abdominal pain with a low haemoglobin level or a raised platelet count combined with nausea, vomiting, reflux, dyspepsia, weight loss or upper abdominal pain.

Refer for same-day assessment in the medical assessment unit would not be appropriate in this scenario. This would be suitable for patients who are acutely unwell with signs of haemodynamic instability or for patients with suspected conditions requiring same-day investigations or treatments.

Refer for urgent CT thorax and abdomen is not the best option. This would be appropriate if the symptoms were suggestive of pancreatic cancer.

Question:

A 50-year-old woman presents to her GP with chronic stiffness and pain in the distal interphalangeal (DIP) joints of her right hand. She also mentions that her stiffness and pain is worse in the morning and is relieved by activity.

What is the most likely diagnosis?

A.Gout

B.Osteoarthritis

C.Pseudogout

D.Psoriatic arthritis

E.Rheumatoid arthritis

Answer:Psoriatic arthritis

Explanation:

An asymmetrical presentation suggests psoriatic arthritis rather than rheumatoid

Important for meLess important

The answer is psoriatic arthritis which typically presents with asymmetric inflammation of distal and proximal interphalangeal joints.

Rheumatoid tends to affect symmetrical joints and may also involve extra-articular manifestation such as atlantoaxial subluxation, rheumatoid nodules, episcleritis etc.

Osteoarthritis - typically affect the distal interphalangeal joints with pain/stiffness worsening with activity and relieved with rest.

Gout tends to be acute attacks and commonly affect one joint such as the MTP joint. Certain triggers such as consuming large amounts of purine-rich foods or alcohol are known to be triggers. Identification of monosodium urate in synovial fluid analysis differentiates this condition to pseudogout which tends to have calcium pyrophosphate.

Question:

A 33-year-old woman is seen at her antenatal appointment at 34 weeks gestation. A vaginal swab taken several years ago by her general practitioner tested positive for group B streptococcus (GBS). She is concerned about GBS infection, as her sister's baby developed a GBS infection shortly after delivery.

What would make her eligible for antibiotic prophylaxis?

A.Family history of infection (i.e. sister's baby)

B.History of infection in previous baby

C.Multiple pregnancy

D.Positive pre-gestational vaginal swab

E.Positive swab during pregnancy with negative swab during labour

Answer:History of infection in previous baby

Explanation:

Maternal intravenous antibiotic prophylaxis should be offered to women with a previous baby with early- or late-onset GBS disease

Important for meLess important

History of infection in previous baby is correct. Patients who have this history are eligible for intravenous antibiotic prophylaxis. GBS infections in newborns can result in death or permanent disability- therefore it is important that those at increased risk are given prophylactic antibiotics to reduce their risk of becoming infected.

Family history of infection (i.e. sister's baby) is incorrect as it would not place this woman and her baby at increased risk of GBS. Therefore she would not be offered antibiotic prophylaxis on the basis of this.

Multiple pregnancy is incorrect. Being pregnant with two or more babies at the same time is however associated with a higher risk of preterm labour, which would be an indication of maternal intravenous antibiotic prophylaxis. There is no mention of whether this patient is pregnant with one or more babies.

Positive pre-gestational vaginal swab is incorrect as it does not place a patient and her baby at increased risk of GBS. Therefore the patient’s history of having a positive swab pre-pregnancy does not make her eligible for intravenous antibiotic prophylaxis.

Positive swab during pregnancy with negative swab during labour is incorrect. Patients who fall into this category are not considered eligible for intravenous antibiotic prophylaxis. There is no mention of this patient being a maternal carrier of GBS during a previous pregnancy.

Question:

A 65-year-old male was recently discharged from hospital after having bilateral total hip replacements. Five days after he arrived home he began to experience a pain in his chest and difficulty in breathing. The ambulance brought him in to the emergency department and it was discovered that he had a pulmonary embolus. He has no past medical history other than the recent surgery, no drug history and he does not smoke or drink alcohol. He is allergic to rivaroxaban and dabigatran. He is kept in hospital for 5 days day to finish his subcutaneous anticoagulation.

Of the following, which is the most appropriate anticoagulation regime to prescribe this patient on discharge?

A.Dabigatran for 3 months

B.Rivaroxaban for 3 months

C.Warfarin for 3 months

D.Alteplase for 3 months

E.Warfarin for 6 months

Answer:Warfarin for 3 months

Explanation:

Venous thromoboembolism - length of warfarin treatment

provoked (e.g. recent surgery): 3 months

unprovoked: 6 months

Important for meLess important

The patient has suffered a provoked pulmonary embolism (provoked by his recent surgery and immobilisation). Of the options, the most appropriate long-term anticoagulation is therefore 3 months of warfarin.

Unprovoked pulmonary emboli should be treated with 6 months of anticoagulation.

The patient is allergic to dabigatran so it would be inappropriate and dangerous to prescribe this.

The patient is also allergic to rivaroxaban so it would be inappropriate and dangerous to prescribe this.

alteplase is used as a thombolytic agent and is used in emergency situations, not long-term anticoagulation

Anticoagulation should be prescribed taking into consideration the patient's comorbidities, allergies and drug history.

Question:

A 54-year-old man presents with a 2-day history of sudden onset left-sided hearing loss. On further questioning, there is no history of trauma and he has otherwise been well in himself. He describes some tinnitus in his left ear alongside vertigo.

On examination, he has a moderate amount of ear wax bilaterally. He has no pinna, tragal or mastoid tenderness. The small amount of tympanic membrane you can see bilaterally appears normal. There is evident hearing loss on his left side.

Whilst performing Weber's test, he localises the sound to his right side. Rinnes test is positive bilaterally (air conduction better than bone).

What is the most appropriate next management step?

A.Ear irrigation

B.Intranasal corticosteroids

C.Routine referral to ENT

D.Trial of prochlorperazine

E.Urgent referral to ENT

Answer:Urgent referral to ENT

Explanation:

Acute sensorineural hearing loss is an emergency and requires urgent referral to ENT for audiology assessment and brain MRI

Important for meLess important

When a patient presents with sudden onset hearing loss it is important to differentiate between conductive and sensorineural hearing loss. As sudden-onset sensorineural hearing loss requires urgent referral to ENT.

This case used both Weber's and Rinne's tests to enable you to identify a left-sided sensorineural hearing loss.

If the sound lateralises in Weber's test (is louder on one side than the other), it suggests either; an ipsilateral conductive hearing loss or a contralateral sensorineural hearing loss.

Rinne's test (air conduction is better than bone conduction - normal/'positive') then allows you to differentiate. In sensorineural hearing loss, both air and bone conduction is equally diminished, giving a 'false' positive result. In conductive hearing loss, bone conduction is better than air conduction.

Ear irrigation is therefore incorrect as it is not a conductive deficit (ear wax).

Intranasal corticosteroids have no role in acute hearing loss. Their main role maybe in eustachian tube dysfunction.

Routine referral to ENT is the next most appropriate, however, a sudden hearing loss should always warrant urgent referral.

Question:

A 23-year-old male student presents with a 4-day history of a headache, low-grade fever, cough, and general malaise. He drinks 20 units of alcohol each week and his flatmate has recently had a respiratory infection. You perform some blood tests and a throat swab for culture.

The results are as follows:

Hb 66 g/L Male: (135-180)

Female: (115 - 160)

Platelets 329 \* 109/L (150 - 400)

WBC 34.2 \* 109/L (4.0 - 11.0)

Haematocrit 2.1 \* 109/L (2.0 - 7.0)

Red cell count 2.9 \* 109/L (1.0 - 3.5)

MCV 0.6 \* 109/L (0.2 - 0.8)

Total bilirubin 49 µmol/L (3 - 17)

Conjugated bilirubin 5 µmol/L (0 - 5)

Unconjugated bilirubin 44 µmol/L (0 - 19)

ALP 127 u/L (30 - 100)

ALT 436 u/L (3 - 40)

γGT 42 u/L (8 - 60)

Albumin 36 g/L (35 - 50)

Lactate dehydrogenase (LDH) 991 U/L (100–250)

Throat swab Positive for Mycoplasma pneumonia

What is the likely cause of his anaemia?

A.Alcohol use

B.Anaemia of chronic disease

C.Aplastic anaemia

D.Autoimmune haemolytic anaemia

E.Liver disease

Answer:Autoimmune haemolytic anaemia

Explanation:

Mycoplasma pneumoniae patient with anaemia, raised LDH, raised unconjugated bilirubin → autoimmune haemolytic anaemia

Important for meLess important

The blood results show normocytic anaemia (low Hb, normal MCV), raised unconjugated bilirubin, raised LFTs and raised LDH.

In a patient with Mycoplasma pneumonia with anaemia, raised LDH and raised unconjugated bilirubin, suspect autoimmune haemolytic anaemia. Raised LDH is a sign of tissue damage/breakdown, and raised unconjugated bilirubin is a sign of haemolysis.

Anaemia of chronic disease can cause either normocytic or microcytic anaemia, however, you wouldn't expect to see raised LFTs and LDH.

Aplastic anaemia is a cause of normocytic anaemia, but you would expect to see pancytopenia (low RBCs, WBCs and platelets). This is because the bone marrow failure in aplastic anaemia affects all blood cells, not just red blood cells.

Liver disease would cause macrocytic anaemia. This is in part due to the fact that many people with liver disease also have B12 and folate deficiencies. In addition to this, cholesterol builds up in the blood, due to the liver not being able to break it down effectively, and is then deposited on the membranes of circulating red blood cells, increasing the surface area of the cells.

Chronic excessive alcohol use would cause macrocytic anaemia. This is due to the long term alcohol ingestion reducing the number of normoblasts (red blood cell precursors) in the bone marrow and causes structural abnormalities in these cells, resulting in fewer or non-functional mature red blood cells.

Question:

A 35-year-old woman presents to the GP with low mood. She struggles to get along with coworkers and feels they are lazy and do not perform to a good enough standard. As a result, she refuses to delegate tasks and has burnt out.

On further questioning, she follows a detailed plan of activities daily and refuses to deviate from it as much as possible. She feels anxious if she fails to follow this plan and sacrifices her free time doing tasks to make up for it.

Given the likely diagnosis, what is the most appropriate step in her management?

A.Dialectical behaviour therapy

B.Exposure and response prevention

C.Eye movement desensitisation and reprocessing

D.Prescribe fluoxetine

E.Prescribe sertraline

Answer:Dialectical behaviour therapy

Explanation:

A female librarian comes for advice. Her colleagues find her inflexible in her approach to her work. She easily becomes annoyed if her 'systems' are interfered with and generally likes to work by herself, using lists and rules to structure her day - obsessive-compulsive personality disorder

Important for meLess important

Dialectical behaviour therapy (DBT) is the correct answer. The patient in the vignette has traits of obsessive-compulsive personality disorder (OCPD; an inflexible approach to work, refusal to delegate tasks due to feeling they are not completed according to her standards, and preoccupation with lists and plans). OCPD should not be confused with obsessive-compulsive disorder (OCD; characterised by obsessions (unwanted intrusive thoughts) and compulsions (repetitive behaviours carried out as a result of the obsessions)). DBT is the mainstay in managing personality disorders.

Exposure and response prevention (ERP) is incorrect. ERP is used to manage OCD as opposed to OCPD. ERP involves exposing a patient to an anxiety-provoking situation (e.g. having dirty hands) and preventing the patient from carrying out their usual safety behaviour (e.g. washing their hands). The patient in the vignette has no clear obsessions (unwanted intrusive thoughts) and compulsions (repetitive behaviours carried out due to the obsessions), making a diagnosis of OCD unlikely.

Eye movement desensitisation and reprocessing (EMDR) is incorrect. EMDR is used to manage post-traumatic stress disorder (PTSD). The patient in the vignette does not have any features of PTSD (e.g. symptoms of re-experiencing such as nightmares or flashbacks, hyperarousal, or emotional numbing).

Prescribe fluoxetine is incorrect. Although fluoxetine may be used to help with any associated depression that may occur due to her personality disorder, it is more appropriate to address the underlying cause first, as this may resolve any associated psychiatric problems. Also, antidepressants carry side effects and there may not be any need for them. Therefore, DBT is more appropriate initially.

Prescribe sertraline is incorrect. This is another antidepressant that may be considered to help manage co-existing depression due to her personality disorder, however, it is more appropriate to address the underlying cause first, as this may resolve any associated psychiatric issues. Therefore, DBT is more appropriately initially.

Question:

A 45-year-old man has chronic liver disease. He presents with chronic progressive pain in his metacarpophalangeal and proximal interphalangeal joints. He does not complain of joint stiffness but mentions that he cannot get an erection. His sister developed a similar set of problems when she was 55-years-old.

On examination, he has grey skin, hepatomegaly, and swollen joints in his hands.

Amongst other tests, the following results are obtained:

Serum transferrin saturation 67% (<45%)

Serum ferritin 1650ng/ml (20-230ng/ml)

Given the most likely diagnosis, what treatment is he likely to begin?

A.Colchicine

B.Methotrexate, sulfasalazine, prednisolone

C.Iron supplements

D.Regular venesection

E.Iron chelator

Answer:Regular venesection

Explanation:

Regular venesection is the mainstay of treatment in haemochromatosis

Important for meLess important

This scenario describes a man with haemochromatosis, as evidenced by arthralgia, liver disease, impotence, skin pigmentation, and diagnostic iron studies. The mainstay of treatment is regular venesection. Because of this, people who regularly lose blood (such as if they menstruate or donate blood) present later.

An iron chelator is only recommended to be used if phlebotomy cannot be tolerated if, for instance, the patient is very anaemic.

Iron supplementation would exacerbate his condition.

Colchicine would be the treatment if the man had acute gout. Gout is a differential for joint pain; however, it classically affects the first metatarsophalangeal joint and would also not explain the rest of the history.

Methotrexate, sulfasalazine and prednisolone would be the recommended management for rheumatoid arthritis. Again, RA is a differential for joint pain; however, it would typically cause an arthralgia with morning stiffness. RA would also not explain the rest of the history.

Question:

You are working in general practice. Your next patient is a 72-year-old gentleman who has attended for review of his recent blood results. You had previously been concerned regarding a raised plasma glucose measurement, so you provided him with lifestyle advice and advised further blood tests in 8 weeks time. He reports making some changes to his diet, and choosing to walk to the local shops rather than driving.

His past medical history includes coeliac disease, chronic kidney disease and osteoarthritis.

His blood results are as follows (fasting sample):

Hb 146 g/L Male: (135-180)

Female: (115 - 160)

Platelets 235 \* 109/L (150 - 400)

WBC 7.0 \* 109/L (4.0 - 11.0)

Na+ 139 mmol/L (135 - 145)

K+ 4.4 mmol/L (3.5 - 5.0)

Urea 10.4 mmol/L (2.0 - 7.0)

Creatinine 216 µmol/L (55 - 120)

eGFR 28 ml/minute

CRP <5 mg/L (< 5)

Plasma glucose 7.3 mol/L (<6 mmol/L)

HbA1c 54 mmol/mol

What is the most appropriate intervention in view of this man's HbA1c?

A.No intervention required

B.Lifestyle advice

C.DESMOND training

D.Metformin

E.Sitagliptin

Answer:Sitagliptin

Explanation:

For type 2 diabetics requiring treatment, metformin is contraindicated in those with eGFR < 30

Important for meLess important

This gentleman's blood results indicates that he has type 2 diabetes mellitus - his blood glucose measurements have been raised on two separate occasions, and his HbA1c measurement is >48 mmol/mol, despite already being given lifestyle advice. He therefore requires treatment with medication.

In this patient, the most appropriate treatment option is sitagliptin, an example of a dipeptidyl peptidase 4 (DPP-4) inhibitor. This is due to his eGFR being <30ml/minute, meaning that metformin is contraindicated.

In this case, the patient has already been provided with lifestyle advice, which he seems to have taken on board. His HbA1c has remained raised, which indicates he requires treatment with medication.

DESMOND (Diabetes Education and Self Management for Ongoing and Newly Diagnosed) is an NHS course designed to educate those with type 2 diabetes and their families, which helps patients to identify their own health risks and to set their own goals. Whilst this may be useful in the ongoing management of his type 2 diabetes, it does not outweigh the need for medication in this case.

Question:

A 9-year-old male presents to the accident and emergency department with his mother complaining of extreme pain in his forearm. He explains he had fallen off his bicycle on his way to school, and the lateral aspect of his forearm was run over by a white van.

On examination, there is some bruising to the lateral aspect of his right forearm, with no obvious deformities and good tone, power and range of movement and in the fingers, wrist and elbow joints. Sensation is in-tact throughout the limb, although he reports pins and needles in his fingers. When assessing tone, the patient is in visible discomfort, which is not reproduced to the same extent as when assessing power.

An x-ray of his right arm is shown below:

What would your next step in the management of this patient be?

A.Book for a review in fracture clinic in 10 days time

B.Computed tomography scan of right arm

C.Discharge with reassurance and safety netting to return if symptoms worsen

D.Immobilise with a back-slab plaster cast and refer for internal fixation

E.Refer to orthopaedic surgeons

Answer:Refer to orthopaedic surgeons

Explanation:

Compartment syndrome will typically not show any pathology on an x-ray, and it's diagnosis is made mostly on clinical suspicion

Important for meLess important

Putting the history and examination together, previous trauma to a limb, with paraesthesia (an early sign), disproportionate pain on assessment of tone (passive rather than active movements) and normal x-ray findings should raise suspicion of compartment syndrome. The syndrome can also arise in people who intensely exercise, or those with bleeding disorders like haemophilia.

Management is with early referral to orthopaedic surgeons, who typically perform fasciotomy to open the compartment and relieve the pressure.

Option 1: This is a good idea if a fracture is seen or highly likely, and especially useful for suspected scaphoid fractures as the 10 day grace period allows for bone resorption to occur and may make fractures more obvious to see. However, suspicion of compartment syndrome should prompt action now rather than later.

Option 2: This is useful if a fracture is not visible on an x-ray, but clinically likely over another diagnosis. It's most often used in cases where a patient is non-weight-bearing on a lower limb, and hip fractures are suspected though x-rays are negative.

Option 3: With ongoing symptoms and a suspicion of compartment syndrome, the patient should be reviewed by orthopaedic surgeons before discharge.

Option 4: A back-slap (or any type of bandaging) is contraindicated if compartment syndrome is suspected, as this would increase compartmental pressures. There is also no evidence of a fracture, so internal fixation would be inappropriate.

Question:

A 22-year-old male presents due to a longstanding problem of bilateral excessive axillary sweating. He is otherwise well but the condition is affecting his confidence and limiting his social life. What is the most appropriate management?

A.Non-sedating antihistamine

B.Topical hydrocortisone 1%

C.Perform thyroid function tests

D.Topical aluminium chloride

E.Refer to dermatology

Answer:Topical aluminium chloride

Explanation:

Topical aluminium chloride preparations are first-line for hyperhidrosis

Important for meLess important

Question:

You are a newly qualified F1 doctor living with other foundation doctors. You work hard during the week and go out most weekends socialising with the other foundation doctors in your year and members of staff on your respective wards. You have received several noise complaints over the past few weekends which have resulted in the police being called out twice before finally being issued a fixed penalty notice by your local authority which you have to pay. What is the most appropriate action?

A.Pay the penalty but there is no need to tell your foundation school or GMC

B.Pay the penalty and inform your foundation school but not the GMC

C.Pay the penalty and inform the GMC but not the foundation school

D.Do not pay the penalty initially, apologise to your neighbours and ask if the police can lift the fine

E.Pay the penalty and inform you educational supervisor

Answer:Pay the penalty but there is no need to tell your foundation school or GMC

Explanation:

Option 1 is correct, you do not need to inform the GMC of certain offences (like fixed penalty notices from local authorities for dog fouling or noise as stated in the GMC guidance referenced below) therefore options 2, 3 and 5 are unnecessary. Option 4 is also inappropriate, it may be sensible to apologise to your neighbour but you should still pay your fine.

'You do not need to tell us about:

a A fixed penalty notice for disorder unless it is specified in paragraph 4

b payment of a fixed penalty notice for a road traffic offence,

c Payment of a fixed penalty notice issued by local authorities (for example, for offences such as dog fouling or noise)'

GMC: Reporting criminal and regulatory proceedings

http://www.gmc-uk.org/guidance/ethicalguidance/21184.asp

Question:

A 56-year-old man is seen in the foot clinic with shooting and burning pain in both feet, which has been ongoing for the last 4 months. He has also noticed numbness in his feet. The patient has a history of type 2 diabetes mellitus and takes metformin, sitagliptin, and empagliflozin. His last HbA1c was measured as 60 mmol/mol.

On examination, there is a bilateral loss of pinprick sensation in a glove-and-stocking distribution in both feet up to the middle calf.

Given the likely diagnosis, what is the most appropriate treatment?

A.Clomipramine

B.Duloxetine

C.Sumatriptan

D.Vortioxetine

E.Zolmitriptan

Answer:Duloxetine

Explanation:

First line treatment in diabetic neuropathy is with amitriptyline, duloxetine, gabapentin or pregabalin

Important for meLess important

Numbness and shooting, burning pain in the feet of a patient with diabetes mellitus suggests the presence of diabetic neuropathy. The fact this patient is taking 3 anti-diabetic medications and his HbA1c is still elevated at 60 mmol/mol suggests that his diabetes mellitus is difficult to control, further increasing his risk of diabetic neuropathy developing. The presence of a loss of sensation in a glove-and-stocking distribution describes symptoms affecting the toes first, then moving up the limbs proximally, which is often seen in diabetic neuropathy.

Duloxetine is correct as this is one of the first-line options for managing neuropathic pain in diabetic neuropathy. This is a selective serotonin and norepinephrine reuptake inhibitor (SNRI). Other options include amitriptyline (a tricyclic antidepressant, TCA), gabapentin (an anticonvulsant), and pregabalin (another anticonvulsant).

Clomipramine is incorrect as this does not play a role in the management of diabetic neuropathy. It is instead considered for use in obsessive-compulsive disorder or generalised anxiety disorder. Although this is another example of a TCA, the only TCA licensed for use in painful neuropathy is amitriptyline.

Sumatriptan is incorrect as this does not play a role in the management of diabetic neuropathy. It is a selective serotonin receptor agonist that is generally used in acute migraine or acute cluster headaches.

Vortioxetine is incorrect as this is a selective serotonin reuptake inhibitor (SSRI) that is also an antagonist at 5-HT3 and an agonist at 5-HT1A. It does not play a role in the management of diabetic neuropathy and is instead used in depression when there has been no or limited response to at least 2 previous antidepressants.

Zolmitriptan is incorrect as it plays no role in managing diabetic neuropathy. It is another example of a selective serotonin receptor agonist that is generally used in acute migraine and acute cluster headaches.

Question:

A 65-year-old woman is prescribed duloxetine for a major depressive episode after having no response to citalopram or fluoxetine.

What is the mechanism of action of the drug that has just been added?

A.Selective serotonin reuptake inhibitor

B.Alpha blocker

C.Serotonin and noradrenaline reuptake inhibitor

D.Atypical antidepressant

E.Tricyclic antidepressant

Answer:Serotonin and noradrenaline reuptake inhibitor

Explanation:

Duloxetine mechanism of action = serotonin and noradrenaline reuptake inhibitor

Important for meLess important

Duloxetine is of the serotonin and noradrenaline reuptake inhibitor class of antidepressants.

NICE: although all antidepressants have roughly equal efficacy, choice of antidepressant depends on patient preference, previous sensitisation, risk in overdose and cost. Selective serotonin reuptake inhibitors (SSRIs) are usually used first-line, as they have a good risk-to-benefit ratio.

Question:

A 32-year-old male patient, with no significant past medical history, presented through the emergency department after recently returning from India, where he had undertaken a prolonged period of farming. He complained of continuous high-grade fevers for 9 days, bilateral subconjunctival haemorrhages with retro-orbital pain and severe myalgia.

On examination, there was maculopapular blanching erythema over the body which spared his palms and soles.

What is the most likely diagnosis here?

A.Chikungunya fever

B.Dengue fever

C.Lassa fever

D.Typhoid fever

E.Yellow fever

Answer:Dengue fever

Explanation:

Retro-orbital headache, fever, facial flushing, rash, thrombocytopenia in returning traveller → ?dengue

Important for meLess important

Dengue is a viral disease transmitted by mosquitoes (especially Aedes aegypti) and is widely distributed throughout the tropics and subtropics. Dengue classically presents with high fever, retro-orbital headaches, body aches, exanthem, and generalised lymphadenopathy.

Chikungunya is characterised by an abrupt onset of fever, however, it is frequently accompanied by joint pain that is very debilitating and a rash that does actually affect the palms and feet which are features absent in this case.

Lassa fever often causes bleeding e.g. mucosal which is generally perceived as one of the main signs suggestive of viral haemorrhagic fevers. Lassa fever is contracted by contact with the excreta of infected African rats (Mastomys rodents) or by person-to-person spread.

Typhoid fever, also known as typhoid, is a disease caused by Salmonella typhi bacteria. Symptoms may vary from mild to severe and usually begin 6 to 30 days after exposure, accompanied by weakness, abdominal pain, constipation, headaches, and mild vomiting. Some people develop a skin rash with rose coloured spots which are not seen in this case.

Yellow fever is a viral disease of typically short duration. Symptoms include fever, chills, loss of appetite, nausea, muscle pains in the back as well as headaches. Yellow fever begins after an incubation period of three to six days and symptoms typically improve within five days making this diagnosis unlikely.

Question:

You are the foundation doctor on call for the surgical ward. A 65-year-old male is six hours post thyroidectomy. You are bleeped and asked to review this man because of worsening stridor. As you arrive at the bedside the nurse hands you the patient's notes. When reviewing the notes, it is apparent the operation was uneventful. The surgeon's notes describe adequate intra-operative haemostasis and closure using sutures.

What is the most appropriate management for this patient?

A.Intramuscular 1:10,000 Adrenaline

B.Call anaesthetist and request immediate intubation

C.Urgent removal of sutures and call for senior help

D.Reassure patient

E.Nebulised hypertonic saline

Answer:Urgent removal of sutures and call for senior help

Explanation:

Postoperative stridor in patients who have undergone neck surgery is a life-threatening emergency. Using an ABCDE approach, this patient has potentially compromised airway and breathing. Each patient undergoing head and neck surgery is returned to the ward with a suture blade. In the event of a post-operative bleed. If a bleed occurs, the pressure behind the suture line increases and the trachea becomes compressed resulting in stridor. Therefore 3 is the answer because immediate removal of the pressure will relieve the stridor. Senior assistance will be required as this patient will require further surgery for haemostasis.

Intubation will improve this patients airway and breathing, however taken in the clinical context removal of the compression is the correct answer.

For those individuals who chose 1, this is not anaphylaxis. There are no predisposing factors in the question. Moreover to treat anaphylaxis you prescribe 1:1000 intramuscular adrenaline not 1:10,000.

Nebulised hypertonic saline will not be of any use in this patient.

Question:

A 38-year-old woman develops lower back pain radiating down her right leg whilst performing DIY. She describes a severe, sharp, stabbing pain which is worse on movement. Clinical examination reveals a positive straight leg raise test on the right side but otherwise the examination is unremarkable. Appropriate analgesia is prescribed. Of the following, what is the most suitable next-step in management?

A.Check ESR

B.Arrange physiotherapy

C.Refer for MRI

D.Perform a vaginal examination

E.Lumbar spine x-ray

Answer:Arrange physiotherapy

Explanation:

This patient has symptoms consistent with a prolapsed disc. Even if this is proven by a MRI scan it would not change the initial management as the vast majority of patients improve with conservative treatment such as physiotherapy.

Question:

A 33-year-old man presents with a painful swollen groin. He has also noticed stinging on urination and some clear discharge coming from his penis. He is sexually active with his partner of 2 months.

On examination, his heart rate is 95/min, respiratory rate is 17/min, blood pressure is 128/73 mmHg, and temperature is 38.1ºC. The right testicle is tender and erythematous but the pain is relieved on elevation.

Given the most likely diagnosis, what is the most appropriate first-line investigation?

A.Perform a nucleic acid amplification test

B.Prescribe levofloxacin

C.Take a midstream sample of urine

D.Take blood for HIV testing

E.Urgent surgical exploration

Answer:Perform a nucleic acid amplification test

Explanation:

Investigations for suspected epididymo-orchitis are guided by age:

sexually active younger adults: NAAT for STIs

older adults with a low-risk sexual history: MSSU

Important for meLess important

Perform a nucleic acid amplification test is correct. This man is presenting with signs and symptoms of epididymo-orchitis: unilateral, painful, swollen testicle that eases in pain when lifted. As he is young and sexually active, the first-line investigation would be a nucleic acid amplification test to look for sexually transmitted infections. This would most commonly reveal organisms such as Chlamydia trachomatis and gonorrhoea.

Take a midstream sample of urine is incorrect. This is the first-line investigation for men with epididymo-orchitis who are older than 35 and have a low risk of sexually transmitted infections. If this were the case, a urine specimen would be sent for culture which would be most likely to reveal organisms such as E coli. As this man is younger and has a higher risk of sexually transmitted infections, a nucleic acid amplification test is needed instead.

Prescribe levofloxacin is incorrect. Although this patient will likely need antibiotic therapy to treat the epididymo-orchitis, it would be tailored to the causative organism. Chlamydia trachomatis is treated with doxycycline and gonorrhoea is treated with ceftriaxone. If the epididymo-orchitis was due to an organism like E coli is commonly treated with a quinolone antibiotic, such as ofloxacin or levofloxacin. Before antibiotics are prescribed, a nucleic acid amplification test must be performed to determine what sexually transmitted infection is causing his symptoms.

Take blood for HIV testing is incorrect. Although this man is sexually active, a diagnosis of HIV less likely than epididymo-orchitis. Therefore, this would not be the next best course of action. His main complaints include scrotal swelling and discomfort, therefore these must be investigated with a nucleic acid amplification test for sexually transmitted infections.

Urgent surgical exploration is incorrect. This is indicated for patients with testicular torsion. This would present with sudden-onset testicular pain which is not alleviated by elevating the scrotum. As this patient's pain is alleviated upon elevation of the scrotum, it is more likely due to epididymo-orchitis, which must be investigated with a nucleic acid amplification test for sexually transmitted infections.

Question:

A 78-year-old man presents to the GP with a very painful ulcer on his leg, which began as a tender, raised nodule some time before. He is accompanied by his wife.

On examination, the GP notes a large ulcer on the calf, which has an overhanging blue edge and a purulent appearance on its surface. It is exquisitely tender to gentle palpation.

On further questioning, the patient admits that he has not been feeling quite himself recently. He has had several episodes of illness over the last few months. He has also noticed some weight loss, and that his dentures no longer fit as his gums are swollen. His wife agrees that her husband has been looking pale and 'under the weather' for about a month, and is eating less at mealtimes.

His past medical history is significant for epilepsy, which is well-controlled, and psoriatic arthritis.

The GP diagnoses pyoderma gangrenosum.

In this case, what is the likely underlying cause of his skin problems?

A.Crohn's disease

B.Acute myeloid leukaemia

C.Ciclosporin use

D.Oesophageal carcinoma

E.Phenytoin use

Answer:Acute myeloid leukaemia

Explanation:

Pyoderma gangrenosum is associated not only with IBD and RA but also with myeloproliferative disorders and AML

Important for meLess important

This man has pyoderma gangrenosum (PG) secondary to acute myeloid leukaemia. This diagnosis is pointed to by his reported pallor, gum hypertrophy, early satiety (due to splenomegaly), poor immune function, and fatigue. Other haematological diseases, such as myelofibrosis, can also cause pyoderma gangrenosum.

Crohn's disease is strongly associated with PG, but is not consistent with the symptoms listed here.

Ciclosporin is used in the treatment of PG, but is not associated with its development. It does, however, cause gum hypertrophy.

Oesophageal carcinoma is not associated with PG.

Phenytoin use may also cause gum hypertrophy, but would also cause other changes in appearance - skin thickening, hirsutism, and acne. It is also not associated with PG.

Question:

Ben is a 15-year-old who is brought to the emergency department following a fall by his mother. An X-ray of his right ankle demonstrates a Weber A fracture.

Which of the following is the most appropriate management for this injury?

A.Discharge with pain relief

B.Immobilisation in a below-knee cast

C.Non-weight bearing in a controlled ankle motion (CAM) boot for 6 weeks

D.Open reduction and external fixation

E.Remain weight bearing as tolerated in a CAM boot for 6 weeks

Answer:Remain weight bearing as tolerated in a CAM boot for 6 weeks

Explanation:

Weber A fractures -- patients with minimally displaced, stable fractures may weight bear as tolerated in a CAM boot

Important for meLess important

Weber A fractures occur below the syndesmosis of the ankle and so are stable. As such they should be immobilised in a CAM boot for 6 weeks and the patient should be encouraged to weight bear as tolerated.

Ben will require pain relief on discharge however it would not form the main management of his injury. His ankle will need immobilising for a period of 6 weeks to allow the fracture to heal.

Immobilisation of his leg in a below-knee cast would not be necessary for this injury as it is a stable fracture.

While a CAM boot would be recommended for a Weber A fracture he should remain weight bearing as tolerated during this time frame.

Open reduction and external fixation would only be necessary for unstable injuries such as a Weber C fracture.

Question:

A 48-year-old man with a history of COPD has been losing weight unintentionally over the last 4 months and has recently noticed yellowing of his eyes. After a series of tests, he is diagnosed with hepatocellular carcinoma.

He is a non-smoker, eats a healthy, balanced diet and has never consumed alcohol.

A deficiency in which of the following proteins produced in the liver is a risk factor for this cancer?

A.Hepcidin

B.Serum albumin

C.Protein S

D.α-fetoprotein

E.Alpha-1 antitrypsin

Answer:Alpha-1 antitrypsin

Explanation:

Alpha-1 antitrypsin deficiency is a risk factor for hepatocellular carcinoma

Important for meLess important

Hepcidin is a peptide hormone that regulates iron homeostasis. It is low in haemochromatosis.

Low serum albumin is termed 'hypoalbuminaemia' and there are many causes of this such as liver disease, nephrotic syndrome or burns.

Protein S is a vitamin K dependent protein. Deficiency will results in higher risk of thrombosis.

α-fetoprotein is raised in hepatocellular carcinoma.

Question:

A 19-year-old man is brought to the general practitioner by his mother. She reports that he has not been himself lately, and she is worried for his mental health. She reports that she has found him alone in his room, talking to himself several times over the past 4 months.

The patient is reluctant to talk to the practitioner, stating that the voice in his head has warned him not to trust doctors. He firmly states that he wants his mother to stay in the room, to protect him. A full psychiatric history reveals that he suddenly started hearing this voice 8 months ago, but reveals no suicidal or homicidal ideations.

The general practitioner explains that he will need to make a psychiatric referral for the patient. This causes the mother to become tearful, and she reports that she doesn't understand how her son, who always got straight A's in school, has become so reclusive over the past two years. She wonders if it is her fault, as she suffered from an eating disorder when she was his age, and thinks she may have passed on a gene for poor mental health.

Which of the following factors from the history is a poor prognostic indicator for this patient's condition?

A.Auditory hallucinations

B.Family history of an eating disorder

C.High IQ

D.Pre-morbid social withdrawal

E.Sudden onset

Answer:Pre-morbid social withdrawal

Explanation:

A prodromal phase of social withdrawal is associated with a poor prognosis in schizophrenia

Important for meLess important

This question tests knowledge of psychiatric conditions, as well as the ability to pick apart a psychiatric history for relevant information. Auditory hallucinations are one of Schneider's first-rank symptoms of schizophrenia, meaning that they are characteristic of schizophrenia. The presence of a first-rank symptom makes the diagnosis of schizophrenia more likely than any other diagnosis. Furthermore, diagnosis of schizophrenia also requires symptoms to have been present for over 6 months, with symptoms being present most of the time. Pre-morbid social withdrawal is a poor prognostic indicator in schizophrenia, as is low IQ, family history of schizophrenia, gradual onset of symptoms and lack of an obvious precipitant.

Auditory hallucinations are a common symptom in schizophrenia. However, they do not denote a poor prognosis.

Family history of schizophrenia is a risk factor for developing schizophrenia and is also a poor prognostic indicator. However, there is no known link between a family history of an eating disorder and a poor prognosis in schizophrenia.

It is a lower IQ that is associated with a poor prognosis in schizophrenia.

Gradual onset of symptoms is associated with a poor prognosis, not sudden onset.

Question:

A 36-year-old male presents to his GP with a raised, patchy rash on his elbows and knees. He tells you the lesions have come on slowly over the past few months and that they are itchy but not painful. On further questioning, he tells you he has recently been on holiday to Morocco where he noticed the rash improved slightly, and he got temporary relief from the itch.

You examine the rash to find well-demarcated, red, scaly patches on his elbow and both knees.

He has a past medical history of ankylosing spondylitis which is treated with naproxen and omeprazole.

What is the most appropriate treatment for the rash?

A.Methotrexate

B.Smoking cessation advice

C.Topical betamethasone + topical calcipotriol

D.Topical clobetasone butyrate

E.Topical hydrocortisone 0.5% + topical calcipotriol

Answer:Topical betamethasone + topical calcipotriol

Explanation:

Topical potent corticosteroid + vitamin D analogue is first-line for chronic plaque psoriasis

Important for meLess important

The history of rash with the examination findings of a well-demarcated red, scaly patch is suggestive of psoriatic plaques. Further supporting the diagnosis is relief in a sunny country like Morocco and the history of ankylosing spondylitis. Ankylosing spondylitis is associated HLA B27, a risk factor for developing psoriasis.

Smoking cessation is an important piece of advice to give but won't treat his rash.

Prescribing a weak steroid, such as hydrocortisone is unlikely to treat his psoriasis adequately.

In addition to a topical steroid, a prescription of a vitamin D analogue is required, making clobetasone butyrate alone the wrong answer.

Methotrexate may be an option further down the line but would be initiated in secondary care, not in the GP setting.

Question:

A 32-year-old man presents with several months of worsening low mood and behaviours that he feels he cannot control. He often feels distressed and finds that the only way to obtain some relief is to repeat a certain phrase in his mind. He has no significant past medical history and is physically well.

What is this symptom an example of?

A.Compulsion

B.Insertion

C.Intrusion

D.Obsession

E.Withdrawal

Answer:Compulsion

Explanation:

An obsession is an intrusive, unpleasant and unwanted thought. A compulsion is a senseless action taken to reduce the anxiety caused by the obsession

Important for meLess important

The act of a repetitive behaviour that a patient feels driven to perform, whether mental or physical, is a compulsion. Whilst this is a mental compulsion - repeating a phrase in the mind until feeling calmer - a physical compulsion may be an act such as repeatedly washing hands, or checking that a door is locked, until satisfied.

Thought insertion is the feeling of one's thoughts not being one's own - belonging to someone else and having been inserted into the mind. This does not fit with the scenario presented above. Insertion is a feature of schizophrenia.

An intrusive thought is an unwelcome, involuntary thought. These may be experienced by the general population, but if frequent and distressing, may develop into obsessions, which are seen as a more severe form of intrusive thought.

Obsessions, as mentioned above, are unwanted, intrusive thoughts that repeatedly enter the mind. These cause distress/discomfort. Coupled with compulsions, these form part of obsessive-compulsive disorder (OCD).

Thought withdrawal is a delusion, like insertion, where the patient believes that thoughts have been removed from their mind by a third-party. This is found in schizophrenia.

Question:

A 69-year-old woman asks you to have a look at her feet. She lives out in Spain most of the year but comes back to the UK periodically to see her family.

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She has similar changes on her forehead. The skin is not pruritic.

What is the most likely diagnosis?

A.Discoid lupus erythematosus

B.Photosensitive eczema

C.Porokeratosis

D.Actinic keratoses

E.Bowen's disease

Answer:Actinic keratoses

Explanation:

Actinic keratoses may develop on any sun-exposed area, not just the forehead and temple. Bowen's disease tends to be isolated and well demarcated.

Question:

A 25-year-old female presents to her GP concerned that her periods have stopped. She has an intrauterine copper device fitted and has had several negative home pregnancy tests. She also reports right upper quadrant pain and having a reduced appetite. On examination, she has marked hepatomegaly and yellow sclera. The GP ordered some blood tests and made an urgent referral to gastroenterology. She sees the gastroenterology consultant in clinic. Here are the blood test results:

Bilirubin 25 µmol/l

ALP 200 u/l

ALT 420 u/l

γGT 72 u/l

Albumin 28 g/l

ANCA negative

Antimitochondrial antibody negative

Anti-nuclear antibodies raised

Smooth muscle antibodies raised

Given the likely diagnosis which of the following forms first line treatment?

A.Pegylated interferon

B.Ribavirin

C.Omeprazole

D.Ursodeoxycholic acid

E.Steroids

Answer:Steroids

Explanation:

Steroids are part of the first-line recommended treatment for severe autoimmune hepatitis

Important for meLess important

It can be complicated to decide when to treat autoimmune hepatitis but if treatment is indicated then the first line is steroids +/- immunosuppressant therapy.

There is some evidence of benefit from ursodeoxycholic acid in some subsets of patients but it is not first line. It is used first line for primary biliary cirrhosis.

Pegylated interferon can be used to treat Hep B.

Ribavirin is another antiviral that can be used to treat Hep C.

Omeprazole is a proton pump inhibitor used to treat conditions such as peptic ulcers and GORD.

Question:

A 25-year-old man with ulcerative colitis presents with new onset itching and fatigue. On examination you note that he is jaundiced and tender in the right upper quadrant with significant hepatomegaly. He reports that his ulcerative colitis is well controlled and he has not had a flare in over 6 months. However, he believes he has lost weight despite no change to his diet or exercise.

Which of the following autoantibody tests would you expect to be positive?

A.Anti-dsDNA

B.p-ANCA

C.Anti-CCP

D.c-ANCA

E.Anti-GBM

Answer:p-ANCA

Explanation:

Primary sclerosing cholangitis can have positive p-ANCA

Important for meLess important

This patient's history of ulcerative colitis coupled with new clinical signs of hepatobiliary disease should make you think of primary sclerosing cholangitis.

Anti-dsDNA is primarily associated with systemic lupus erythmetous whilst Anti-CCP is highly specific for rheumatoid arthritis. Additionally, Anti-GBM is associated with Goodpasture's Syndrome.

The ANCA antibodies are associated with small vessel vasculitides with c-ANCA primarily associated with granulomatosis with polyangiitis and eosinophilic granulomatosis with polyangiitis.

On the other hand, p-ANCA can be found in broad range of conditions including primary sclerosing cholangitis, autoimmune hepatitis and ulcerative colitis.

Question:

A 27-year-old woman presents to her general practitioner with an apparent worsening of her diabetes. She has been diagnosed with type 1 diabetes since she was a teenager. She has previously not had good control of her diabetes due to depression, but 1 year ago she got a personal insulin pump which helped achieve more stable control.

Lately, she has been struggling to maintain consistent blood glucose measurements and has found them much more erratic.

When asked, she reports she has also been increasingly bloated lately with early satiety and chronic nausea.

What is the most likely underlying diagnosis?

A.Coeliac disease

B.Gastroparesis

C.Insulin-restricting bulimia nervosa

D.Irritable bowel syndrome

E.Ovarian cancer

Answer:Gastroparesis

Explanation:

Erratic blood glucose control, bloating and vomiting think gastroparesis

Important for meLess important

Unstable blood glucose measurements while using an insulin pump suggest there is an underlying issue. This method of monitoring and insulin administration leads to greater accuracy in overall control. This woman presents with the symptoms of bloating, early satiety and chronic nausea. These are 3 of the 4 cardinal symptoms of gastroparesis - the fourth being vomiting, which may not always be seen. Gastroparesis refers to delayed gastric emptying, which can make it more difficult to deliver insulin timed with meals, leading to delayed digestion and therefore erratic blood sugars. The past history of mental health issues, her age, and the fact she is female all support a diagnosis of gastroparesis.

Coeliac disease may lead to issues with blood sugars and is not uncommon in those with type 1 diabetes due to the autoimmune similarities. However, in the absence of symptoms related to bowel movements, this is a less likely diagnosis.

Insulin-restricting bulimia nervosa may lead to erratic blood sugar measurements. This is a scenario where restricting administering insulin is a form of purging behaviour, forcing the body into ketosis and therefore losing weight. It is more likely to present presenting with diabetic ketoacidosis repeatedly. Equally, a patient is unlikely to present to their general practitioner with symptoms relating to their bulimia, without having that as their primary concern.

Irritable bowel syndrome may cause nausea, early satiety and bloating mentioned. However, it is less likely to cause erratic blood sugar measurements as absorption of food is less likely to be impaired in irritable bowel syndrome.

Ovarian cancer would not explain the erratic blood sugar control. Equally, whilst her early satiety and bloating may sound like ovarian cancer, her age would make this incredibly unlikely.

Question:

A phlebotomist gives herself a needlestick injury whilst taking blood from a patient who is known to be hepatitis B positive. The phlebotomist has just started her job and is in the process of being immunised for hepatitis B but has only had one dose to date. What is the most appropriate action to minimise her risk of contracting hepatitis B from the needle?

A.No action needed, complete hepatitis B vaccination course as normal

B.Give oral ribavirin for 4 weeks

C.Give an accelerated course of the hepatitis B vaccine + hepatitis B immune globulin

D.Give hepatitis B immune globulin + oral ribavirin for 4 weeks

E.Give hepatitis B immune globulin

Answer:Give an accelerated course of the hepatitis B vaccine + hepatitis B immune globulin

Explanation:

Question:

A 24-year-old man has been struck by a cricket bat to the side of the head. On initial presentation, he has a Glasgow Coma Score (GCS) of 12 and has some bruising at the site of impact. He has no signs of a basal skull fracture and no neurological deficits. He has not vomited or had a seizure. Which of the following would be most appropriate?

A.Perform a CT head scan within 1 hour

B.Perform a CT head scan within 8 hours

C.Perform a MRI head scan within 1 hour

D.Perform a MRI head scan within 8 hours

E.Monitor the patient's status for deterioration before performing further tests

Answer:Perform a CT head scan within 1 hour

Explanation:

CT imaging of the head is currently the primary investigation of choice for detecting clinical important brain injuries in the acute setting.

For safety, logistic and resource reasons MRI is not the investigation of choice in this setting.

GCS less than 13 on initial assessment in the emergency department warrants a CT head scan within 1 hour of this being identified. The indications for immediate CT head in this setting are found below.

References:

NICE (2014): Head injury: assessment and early management.

Question:

A 12-month-old boy is reviewed in the emergency department after his concerned parents brought him in for review. They state their child has been crying non-stop for the past few hours which is highly unusual for him.

The parents describe the child drawing his knees up to his chest and turning pale. They also report several instances of bilious vomiting this morning.

On examination, a mass is palpated in the right upper quadrant. The examination is otherwise normal.

Given the likely diagnosis and pending further investigations, how should this child be managed?

A.Barium enema

B.Gut rest, total parenteral nutrition (TPN) and laparotomy

C.Laparotomy

D.Ramstedt pyloromyotomy

E.Reduction via air insufflation

Answer:Reduction via air insufflation

Explanation:

An infant with inconsolable crying, drawing legs up to the abdomen associated with pallor, vomiting → ?intussusception

Important for meLess important

This child is presenting with a likely diagnosis of intussusception. The patient is presenting with inconsolable crying, bilious vomiting, and spells in which he pulls his legs up to his abdomen and turns pale. A mass in the right upper quadrant is also identified. These are all very key signs and symptoms of intussusception. Pending an investigation with ultrasound, this child requires urgent treatment.

The first line treatment for this child would be reduction via air insufflation. This is also called an air enema. This procedure is usually done under radiological control and aims to create pressure within the intestine (using air). This pressure causes the bowel to 'un-telescope' and consequently relieves the obstruction causing the pain, mass, and vomiting.

Barium enema is incorrect. A barium enema was previously used in the treatment of intussusception. However, more recently, air enemas have taken over in the treatment for several reasons. Research has shown that intussusception treated by an air enema is less likely to reoccur than one treated by a barium enema. Secondly, the air is safer compared to barium in the event of intestinal perforation.

Gut rest, TPN and laparotomy is incorrect. This is the treatment option for necrotising enterocolitis. Necrotising enterocolitis is commonly seen in premature infants and presents with feeding intolerance, and bloody stools. This is not the case in this patient and therefore, this treatment option is incorrect.

Laparotomy is incorrect. This refers to the surgical treatment of numerous different conditions. It would be used in paediatric gastrointestinal disorders for several conditions, for example, appendicitis or intestinal malrotation. Intestinal malrotation could present as in the child above, however, you would be less likely to see a child drawing their legs to their abdomen and turning pale alongside a right upper quadrant mass (these are very classical signs of intussusception). Surgery can be used to treat intussusception. However, is not the first-line treatment option. It is normally only used if the child is peritonitic (indicating a perforation), or if an air enema fails.

Ramstedt pyloromyotomy is incorrect. This is the name given to the procedure that treats pyloric stenosis. A child with pyloric stenosis would usually present much younger (around 1-month-old) and present with projectile, non-bilious vomiting. A Ramstedt pyloromyotomy refers to the surgical procedure in which part of the muscles in the pyloric sphincter are cut, to reduce stenosis and allow passage of food.

Question:

A 78-year-old man is brought into the emergency department with severe haematemesis. He is brought for urgent endoscopy, which shows oesophageal varices.

Which of the following should be done first line during endoscopy to stop the bleeding?

A.Adrenaline injection

B.Band ligation

C.Endoscopic sclerotherapy

D.Propranolol

E.Sengstaken tube

Answer:Band ligation

Explanation:

Variceal band ligation is the technique to stop variceal bleeding if it is oesophageal

Important for meLess important

Variceal band ligation is the NICE recommended method of stopping oesophageal variceal bleeding. Sengstaken tube and TIPSS is recommended if this fails. Propranolol is used as bleeding prophylaxis. Endoscopic sclerotherapy is no longer recommended to treat variceal banding first line. Adrenaline injection is more commonly used for other causes of upper GI bleeding.

Question:

A 50-year-old woman in the general medical ward complains of palpitations. She denies any chest pain or shortness of breath. Her ECG shows supraventricular tachycardia (AVNRT) was diagnosed. Her blood pressure is 135/86 mmHg. Initial Valsalva manoeuvre fails to restore sinus rhythm. Your consultant asks you to give her adenosine. The only access available is a 20G (small) cannula in the dorsum of her left hand. This is currently being used for infusion of 0.9% sodium chloride solution.

What is the most appropriate way of administering adenosine in this patient?

A.Adenosine can be given orally

B.Stop the saline infusion and use the peripheral iv access

C.Inject adenosine without stopping the iv fluid

D.Set up a central access for adenosine infusion

E.Insert a 16G cannula in her right antecubital vein

Answer:Insert a 16G cannula in her right antecubital vein

Explanation:

IV adenosine needs to be infused via a large-calibre vein or central route

Important for meLess important

Adenosine cannot be given orally. Adenosine half-life is less than 10 seconds and therefore, a central route or large-calibre vein is required to administer adenosine effectively. In this case, the cannula in her left arm is unlikely to be large enough for adenosine. While a central route is an appropriate route, it is more practical to insert a peripheral cannula into the antecubital vein for rapid adenosine iv injection. A large bore cannula (preferably 16G) should be used.

BNF: 'For rapid intravenous injection give over 2 seconds into central or large peripheral vein followed by rapid Sodium Chloride 0.9% flush; injection solution may be diluted with Sodium Chloride 0.9% if required'

Question:

Mr Fairweather, a 75-year-old male, attended his GP complaining of lethargy, back pain and feeling unwell for several months. His GP ordered blood tests including liver function tests (LFT's).

Bilirubin 10 µmol/l

ALP 895 u/l

ALT 22 u/l

γGT 35 u/l

Albumin 45 g/l

Which of the following conditions could have caused the abnormality in these liver function tests?

A.Hepatocellular carcinoma

B.Hepatitis

C.Gallstones

D.Bone metastases

E.Primary sclerosing cholangitis

Answer:Bone metastases

Explanation:

Raised ALP in the presence of normal LFT's should raise suspicion of malignancy. Particularly bone cancer/ metastases

Important for meLess important

These LFT's show an isolated rise in alkaline phosphatase (ALP). A raised ALP in the presence of otherwise normal LFT's should make you consider bony malignancy in view of the history of lethargy, back pain and feeling unwell in an elderly patient. The back pain could potentially be due to bony metastases, this is common particularly in prostate cancer. Other causes of raised ALP include: Paget's disease, osteomalacia, rickets, bone fractures, primary bone tumours, pregnancy (as it is released by the placenta). Other tests you may wish to consider include: PTH, calcium, PSA and a skeletal survey.

Hepatocellular carcinoma would cause deranged LFT's in the vast majority of cases. You would not expect a sole rise in ALP.

Hepatitis would also cause deranged LFT's, although ALP would be raised so would ALT. You would not expect a sole rise in ALP.

In primary sclerosing cholangitis, ALP is significantly raised but ALT is usually 2-3 times the normal limit as well.

In the case of gallstones, deranged LFTs may or may not be seen depending on the location of the gallstone and if the patient is symptomatic or not. Gallstones if symptomatic are commonly associated with right upper quadrant pain and are unlikely to present with non-specific lethargy.

Question:

A 59-year-old man undergoes a laparotomy for bowel obstruction. On postoperative day 2, while walking in the hallway he experiences a sudden sharp pain and tearing sensation in his lower abdomen. Physical examination of the abdomen reveals separated wound margins with a tiny gaping area and splitting of the sutures in the lower half of the incision. His vital measurements indicate a blood pressure of 130/80mmHg, and a heart rate of 96 beats per minute.

Which of the following is the best initial step in the management of this patient?

A.Bedside suturing

B.Blood grouping and cross match + blood transfusion

C.Cover with sterile saline-soaked gauze + IV antibiotics

D.Manual reduction with sterile gloves

E.Surgical management in theatre

Answer:Cover with sterile saline-soaked gauze + IV antibiotics

Explanation:

Abdominal wound dehiscence should initially be managed with coverage of the wound with saline impregnated gauze + IV broad-spectrum antibiotics

Important for meLess important

Abdominal wound dehiscence is a significant complication in abdominal surgeries. Failure of proper wound healing can lead to partial or complete separation of approximated edges and if severe, protrusion of viscera externally. When dehiscence occurs, the treatment involves coverage of the wound with saline impregnated gauze (in the ward) and IV broad-spectrum antibiotics, along with analgesia, IV fluids and arrangements for a return to the operation theatre.

Bedside suturing is not the correct answer because it can lead to further infections which can be fatal.

Blood grouping and cross-match followed by blood transfusion is not the appropriate answer because the patient is not actively bleeding and vital measurements are also within normal limits. Since the patient is being prepped for surgery, this may be needed at a later stage but is not 'the next best step' in the management of this patient.

Manual reduction with sterile gloves, though performed previously, is not the recommended course of action. Also, it can cause damage to the gut loops.

Surgical management in theatre is the wrong answer because although it is the definitive treatment, the operation should not be rushed before managing the wound initially.

Question:

A 34-year-old woman who is 32 weeks pregnant presents to her local antenatal unit for a midwife check-up. Her pregnancy has also been complicated by intrahepatic cholestasis of pregnancy, which has been treated with ursodeoxycholic acid. This is her first pregnancy, and she has had no previous miscarriages. She is epileptic, and is being treated with lamotrigine.

She tells her midwife that her step-sister has just had another term stillbirth, after already having 2 prior. This has made her worried about her own pregnancy.

Which part of her medical history puts her most at risk for this outcome?

A.Her age

B.Her step-sister having recurrent stillbirths

C.Intrahepatic cholestasis of pregnancy

D.Lamotrigine treatment

E.Nulliparity

Answer:Intrahepatic cholestasis of pregnancy

Explanation:

Intrahepatic cholestasis of pregnancy increases the risk of stillbirth; therefore induction of labour is generally offered at 37-38 weeks gestation

Important for meLess important

Intrahepatic cholestasis of pregnancy is commonly cited to put women at increased risk of stillbirth, due to elevated levels of circulating bile acids. Some literature has possibly shown that this is no longer the case, but the general consensus is a relatively high risk of causing stillbirth. It is still recommended that the risk is high enough, that early induction of labour should be offered.

Whilst increasing maternal age is a risk factor for stillbirth, an age of 34-year-old would not be considered as older maternal age, as this is considered to be 35-years-old or older.

Whilst there may be a genetic link to stillbirths, and a family history may have an influence on the likelihood of stillbirths, it is important to recognise that what has been described is not a family history. Her step-sister is not biologically related to her, as they are family by marriage her parent, to her step-sister's parent. Therefore, medical conditions cannot be passed between them due to a genetic link.

Lamotrigine is considered the safest anti-epileptic to use in pregnancy. There is no evidence that it increases the risk of stillbirth.

Nulliparity is not known to be a risk factor for stillbirths, and therefore this cannot be the correct answer.

Question:

Which one of the following treatments have not been shown to improve mortality in patients with chronic heart failure?

A.Beta-blockers

B.Spironolactone

C.Furosemide

D.Nitrates and hydralazine

E.Enalapril

Answer:Furosemide

Explanation:

Whilst useful in managing the symptoms of acute and chronic heart failure furosemide offers no prognostic benefits.

Question:

A 59-year-old man presents with recurrent attacks of vertigo and dizziness. These attacks are often precipitated by a change in head position and typically last around half a minute. Examination of the cranial nerves and ears is unremarkable. His blood pressure is 120/78 mmHg sitting and 116/76 mmHg standing. Given the likely diagnosis of benign paroxysmal positional vertigo, what is the most appropriate next step to help confirm the diagnosis?

A.Epley manoeuvre

B.Tilt table test

C.Tympanometry

D.MRI of the cerebellopontine angle

E.Dix-Hallpike manoeuvre

Answer:Dix-Hallpike manoeuvre

Explanation:

BPPV

Dix-Hallpike manoeuvre is diagnostic

Epley manoeuvre is for treatment

Important for meLess important

This patient has classical symptoms of benign paroxysmal positional vertigo. A positive Dix-Hallpike manoeuvre is an appropriate next step and would help support the diagnosis.

The change in blood pressure on standing is not significant.

Question:

A 32-year-old man presents to the general practitioner with a two-week history of depressed mood which is associated with nightmares and sleep disturbance. The symptoms began after he was a victim of a violent robbery outside his place of work. He has been avoiding going to work and often feels like he is in a daze.

Which of the following is the most likely diagnosis?

A.Acute stress disorder

B.Generalised anxiety disorder

C.Panic disorder

D.Phobic disorder

E.Post-traumatic stress disorder

Answer:Acute stress disorder

Explanation:

Acute stress disorder is defined as an acute stress reaction that occurs in the 4 weeks after a traumatic event, as opposed to PTSD which is diagnosed after 4 weeks

Important for meLess important

The correct answer is acute stress disorder.

Acute stress disorder is defined as an acute stress reaction that occurs in the first 4 weeks after a person has been exposed to a traumatic event (threatened death, serious injury e.g. road traffic accident, sexual assault etc). This is in contrast to post-traumatic stress disorder (PTSD) which is diagnosed after 4 weeks. Features are very similar to PTSD, including:

Intrusive thoughts e.g. flashbacks, nightmares

Dissociation e.g. 'being in a daze', time slowing

Negative mood

Avoidance

Arousal e.g. hypervigilance, sleep disturbance

Generalised anxiety disorder is incorrect. This is a condition characterised by excessive, 'free-floating' anxiety and worry for at least 6 months.

Panic disorder is incorrect, this is characterised by repeated attacks of severe anxiety with no apparent trigger. Autonomic symptoms predominate, including palpitations, sweating and dyspnoea.

Phobic disorder is incorrect, this is characterised by an irrational fear of objects or situations, phobias can be extremely varied.

Post-traumatic stress disorder is incorrect as this presents at least four weeks after the precipitating incident. It does however present with very similar symptoms to those described.

Question:

A 60-year-old woman presents a 'hot rash' on her left shin. This has been present for the past three days. On examination her pulse is 72 / min, blood pressure is 120/82 mmHg and temperature is 37.3ºC. Blood tests show the following:

Hb 12.9 g/dl

Platelets 222 \* 109/l

WBC 11.2 \* 109/l

CRP 39 mg/l

D-dimer 220 ng/ml

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What is the most appropriate management?

A.Enquire about domestic violence

B.Oral flucloxacillin

C.Low-molecular weight heparin

D.Intravenous antibiotics

E.Topical clotrimazole

Answer:Oral flucloxacillin

Explanation:

The D-Dimer result effectively excludes a deep vein thrombosis making cellulitis by far the most likely diagnosis. The heart rate, temperature, white cell count and CRP do not suggest a severe infection requiring intravenous antibiotics.

Question:

A 44-year-old man is diagnosed with lower back pain. This has been present for around 2 weeks and there are no red flags such as trauma or systemic symptoms. Clinical examination including neurological examination is unremarkable. You encourage him to remain active and give him a 'back sheet' detailing some exercises he could do. He asks for analgesia to 'help him through the day'. What is the most appropriate initial medication?

A.Oral paracetamol

B.Oral codeine

C.Oral naproxen

D.Topical ibuprofen

E.Oral amitriptyline

Answer:Oral naproxen

Explanation:

From the 2016 NICE guidelines:

1.2.17 Consider oral non-steroidal anti-inflammatory drugs (NSAIDs) for managing low back pain, taking into account potential differences in gastrointestinal, liver and cardio-renal toxicity, and the person's risk factors, including age.

1.2.18 When prescribing oral NSAIDs for low back pain, think about appropriate clinical assessment, ongoing monitoring of risk factors, and the use of gastroprotective treatment.

1.2.19 Prescribe oral NSAIDs for low back pain at the lowest effective dose for the shortest possible period of time.

1.2.20 Consider weak opioids (with or without paracetamol) for managing acute low back pain only if an NSAID is contraindicated, not tolerated or has been ineffective.

1.2.21 Do not offer paracetamol alone for managing low back pain.

Question:

A 65-year-old man presents for a review of his type 2 diabetes. He has been taking his medication as directed and has made appropriate lifestyle changes.

He has a past medical history of hypercholesterolaemia and hypertension, and he takes metformin, atorvastatin, and amlodipine.

His heart rate is 75 bpm, his blood pressure is 137/76 mmHg, and his BMI is 36 kg/m². His lower limb neurovascular status is intact. An HbA1c measurement is taken which returns as 59 mmol/mol.

What is the most appropriate medication to prescribe?

A.Canagliflozin

B.Exenatide

C.Gliclazide

D.Glimepiride

E.Pioglitazone

Answer:Canagliflozin

Explanation:

SGLT-2 inhibitors have the beneficial side effect of weight loss in patient with T2DM

Important for meLess important

Canagliflozin is correct. This patient is taking metformin and their HbA1c measurement is above 58 mmol/mol, meaning another diabetic medication should be recommended (i.e. second-line treatment should be offered). Given the large number of options available, the choice of treatment depends on the patient's circumstances, such as contraindications, comorbidities, weight, and preference. Since this patient's BMI is raised, it would be appropriate to offer a drug with the beneficial side effect of weight loss. This narrows down the options to canagliflozin (an SGLT-2 inhibitor), or exenatide (A GLP-1 mimetic). Since GLP-1 mimetics are offered after trialling first, second, and third-line options, the most appropriate option would be canagliflozin.

Exenatide is incorrect. Although this GLP-1 mimetic has the beneficial side effect of weight loss, NICE does not recommend it at this stage due to a lack of evidence surrounding its effectiveness both in terms of offering it second-line and in terms of its cost. It is offered after trialling first, second, and third-line options.

Gliclazide is incorrect. This is a sulfonylurea, and although it is a second-line option, a known side effect it carries is weight gain, which would not be ideal in this patient given their BMI.

Glimepiride is incorrect. This is another example of a sulfonylurea, which also carries the side effect of weight gain, which would not be ideal in this patient given their BMI.

Pioglitazone is incorrect. Although this is another second-line option, one of the side effects pioglitazone carries is weight gain, which would not be ideal in this patient given their BMI.

Question:

A 32-year-old woman has just had her 34 week check. The patient reported reduced fetal movements 2 days ago, but they are now back to normal. She underwent an ultrasound to check if there were any problems. The obstetrician explains he found a defect in the abdominal wall and the intestines are outside the baby's body but contained within a membrane. The baby is otherwise healthy.

Which of the following options is the most suitable for this patient?

A.Continue with a natural vaginal delivery

B.Give IM corticosteroids immediately

C.Perform an immediate caesarean section

D.Plan a caesarean section at 37 weeks

E.Plan an induction of labour at 37 weeks

Answer:Plan a caesarean section at 37 weeks

Explanation:

If an unborn has exomphalos then caesarean section is indicated to reduce the risk of sac rupture

Important for meLess important

This baby is most likely to have exomphalos since the abdominal content is contained within a membrane.

The most appropriate option would be to plan for a caesarean section. It can be possible to deliver vaginally, but a caesarean section is the safest approach to delivery.

There is no indication for an emergency caesarean section at the moment. The baby is not in distress.

Again, induction of labour for a vaginal is not the best option, a caesarean section would be better.

Similarly, IM corticosteroids are not required as there is no risk of a premature delivery at the moment. IM corticosteroids are used when women go into, or at risk of premature labour.

Question:

A 6-month-old boy is brought to the GP by his father, who is concerned about his growth. He says that his son is very pale, and seems to get tired easily when playing. His son has also always had difficulty feeding and is very 'fussy,' in addition to having very loose stools and regular fevers without cold symptoms. The GP performs an examination and determines that the child has hepatosplenomegaly. Pending further investigations, he makes the provisional diagnosis of beta thalassaemia major.

What laboratory finding is most consistent with the provisional diagnosis?

A.Absent HbA2

B.Macrocytic anaemia

C.Raised HbA

D.Raised HbA2

E.Reduced HbF

Answer:Raised HbA2

Explanation:

HbA2 is raised in patients with beta thalassaemia major

Important for meLess important

With the provisional diagnosis of beta thalassaemia major, one would expect HbA2 to be raised.

This therefore means that absent HbA2 is an incorrect answer.

Patients with beta thalassaemia often have microcytic anaemia, alongside an absent HbA and a raised HbF, therefore the other answers are not correct.

Question:

An intercalating medical student conducts a retrospective cohort study examining the association between socioeconomic status and mortality in medical inpatients. The study finds there to be no association and the student's supervisor therefore suggests that the study should not be published because clinicians would not be interested in the result.

What is the name given to this form of bias?

A.Response bias

B.Observer bias

C.Publication bias

D.Recall bias

E.Selection bias

Answer:Publication bias

Explanation:

Publication bias is the tendency for studies showing a positive result to be published over studies not showing a positive result

Important for meLess important

It is important to know about the different types of bias when critically appraising research articles in order to check whether or not they have been minimised. When there is evidence of bias in an article, the results may not be valid.

Response bias: Those who respond to a questionnaire or volunteer for a trial are not representative of the population

Observer bias: There is observer subjectivity about the outcome

Publication bias: Studies that report negative findings are less likely to be published

Recall bias: Patients are more likely to recall exposures that they believe are related to the outcome

Selection bias: The study sample is not representative of the population

When conducting a meta-analysis, it is important to minimise publication bias through the statistical methods described below as well as searching the grey literature (unpublished).

Question:

A 45-year-old woman presents with muscle weakness primarily affecting her legs. She also complains of chest pain. On examination, you note proximal myopathy of the upper limbs (MRC grade 4/5) and lower limbs (MRC grade 3/5). The weakness demonstrates fatiguability, The examination was otherwise unremarkable.

A chest x-ray medicine:

Chest x-ray Large mediastinal mass

What is the most likely diagnosis?

A.Dermatomyositis

B.Lambert-Eaton myasthenic syndrome

C.Lymphoma

D.Myasthenia gravis

E.Systemic lupus erythematosus

Answer:Myasthenia gravis

Explanation:

Anterior mediastinal mass + symptoms of myasthenia = thymoma

Important for meLess important

A mediastinal mass has a wide differential which includes lymphoma, lung cancer, thymoma and infection (e.g. TB).

Myasthenia gravis is correct. Myasthenia gravis (MG) is an autoimmune neuromuscular disorder characterized by fluctuating motor weakness involving ocular, bulbar, limb, and/or respiratory muscles. The presence of a mediastinal mass associated with proximal myopathy makes MG with a comorbid thymoma the most likely diagnosis. Furthermore, the fatigable weakness is classic of MG.

Dermatomyositis is incorrect. Although dermatomyositis can present with a proximal myopathy, the absence of myalgia and skin manifestations makes this a less likely diagnosis. It is important to remember that mediastinal masses can be associated with dermatomyositis which is often a paraneoplastic condition secondary to lung cancer.

Lambert-Eaton myasthenic syndrome is incorrect. Although this remains within the differential diagnosis (e.g. as a paraneoplastic phenomenon secondary to lung cancer), it is an exceedingly rare condition making this less likely. Furthermore, in Lamber-Eaton myasthenic syndrome, motor power actually improves with repeated testing in contrast to the fatiguability seen in MG. In this case, the presence of fatiguability favours the diagnosis of MG.

Lymphoma is incorrect. Paraneoplastic neurological syndromes rarely associate with lymphoma, with the exception of cerebellar degeneration and dermatomyositis. The absence of myalgia and skin manifestations makes paraneoplastic dermatomyositis an unlikely diagnosis.

Systemic lupus erythematosus (SLE) is incorrect. The coexistence of SLE and thymoma is rare. SLE can rarely cause muscle weakness, however, this would usually be a myalgic process resulting in pain. Furthermore, there are no other typical features of SLE present in this case.

Question:

A 36-year-old man is incidentally found to have a raised blood pressure during a routine health check-up. He is currently asymptomatic and has no past medical or family history. He is of normal weight and height and has no abnormalities on fundoscopy. A recent ECG is normal.

He agrees to home blood pressure monitoring which gives an average reading of 158/98 mmHg and is subsequently diagnosed with hypertension. Blood tests are taken as part of the assessment and reveal the following:

Na+ 146 mmol/L (135 - 145)

K+ 3.2 mmol/L (3.5 - 5.0)

Bicarbonate 24 mmol/L (22 - 29)

Urea 5.1 mmol/L (2.0 - 7.0)

Creatinine 98 µmol/L (55 - 120)

What is the most appropriate next investigation?

A.24h urinary metanephrines

B.Overnight dexamethasone suppression test

C.Short Synacthen test

D.Plasma aldosterone/renin ratio

E.Echocardiogram

Answer:Plasma aldosterone/renin ratio

Explanation:

A plasma aldosterone/renin ratio is the first-line investigation in suspected primary hyperaldosteronism

Important for meLess important

A combination of hypertension and hypokalaemia is suggestive of hyperaldosteronism. The plasma aldosterone/renin ratio is the most useful first-line investigation if this is suspected, as a highly raised aldosterone compared to renin confirms it is hyperaldosteronism and indicates the disease is primary (originating in the adrenals).

Urinary metanephrine collection is useful in the investigation of suspected phaeochromocytoma. This would likely present with episodic headache, sweating and tachycardia. This patient is asymptomatic so phaeochromocytoma is not the most likely diagnosis.

Overnight dexamethasone suppression test is useful in the investigation of Cushing's syndrome. This would likely present with weight gain, central obesity, weakness and striae. This patient is asymptomatic and has no features suggestive of Cushing's.

The short Synacthen test is useful in investigating Addison's disease. This would be more likely to cause hypotension, hyponatraemia and hyperkalaemia due to cortisol and eventual aldosterone deficiency.

Echocardiography is not indicated as his ECG is normal.

Question:

A 73-year-old man presents to the emergency department with a two-week history of shortness of breath and dry cough. He has no relevant past medical history.

On examination, his saturations are 94% on 4 litres of oxygen. His heart rate is 91/min and his blood pressure is 96/63mmHg. His temperature is recorded at 38.4ºC. On exposure, several patches with a 'target' appearance are noted.

Initial investigations are listed below:

Hb 109 g/L Male: (135-180)

Platelets 201 \* 109/L (150 - 400)

WBC 13.8 \* 109/L (4.0 - 11.0)

Na+ 137 mmol/L (135 - 145)

K+ 4.3 mmol/L (3.5 - 5.0)

Urea 6.2 mmol/L (2.0 - 7.0)

Creatinine 102 µmol/L (55 - 120)

CRP 61 mg/L (< 5)

Chest x-ray Bilateral consolidation

Which further investigation will confirm the responsible pathogen?

A.Bronchoalveolar lavage

B.Interferon-gamma release assay

C.Serology

D.Sputum microscopy, culture, and sensitivity

E.Urinary antigen

Answer:Serology

Explanation:

Mycoplasma? - serology is diagnostic

Important for meLess important

This man has presented to the emergency department with pneumonia. The findings of erythema multiforme as well as bilateral consolidation on chest x-ray are classical findings for pneumonia caused by Mycoplasma pneumoniae, for which serology is diagnostic.

Bronchoalveolar lavage can detect a range of pathogens but is not as effective as serology in identifying Mycoplasma pneumoniae.

Interferon-gamma release assays are a diagnostic test used to confirm latent tuberculosis. This is not the diagnosis here.

Sputum microscopy, culture, and sensitivity would be a reasonable investigation to request. It can identify a range of pathogens but is not the preferred investigation for identifying Mycoplasma pneumoniae which is the most likely diagnosis in this instance.

Urinary antigen tests are useful in diagnosing pneumonia secondary to Legionella pneumophila which does present similarly to Mycoplasma pneumoniae infection however this is not the diagnosis here. A key diagnostic clue is that pneumonia from Legionella pneumophila presents with hyponatraemia rather than erythema multiforme.

Question:

A 55-year-old man presents to his GP with intermittent nausea, constipation and increased thirst. Bloods show the following:

Calcium 3.05 mmol/L

Albumin 39 g/L

What are the two most likely differential diagnoses in this patient?

A.Primary hyperparathyroidism OR malignancy

B.Primary hyperparathyroidism OR sarcoidosis

C.Primary hyperparathyroidism OR medication-related

D.Malignancy OR osteoporosis

E.Osteoporosis OR sarcoidosis

Answer:Primary hyperparathyroidism OR malignancy

Explanation:

Malignancy and primary hyperparathyroidism account for 90% of hypercalcaemia cases

Important for meLess important

Question:

A 14-year-old is referred to the hospital due to swelling of both legs.

Doppler ultrasound is organised which is negative for deep vein thrombosis (DVT) but shows diffuse subcutaneous oedema in both legs.

Urinalysis reveals 3+ proteinuria and no other findings.

Blood results are as follows.

Na+ 144 mmol/L (135 - 145)

K+ 3.7 mmol/L (3.5 - 5.0)

Bicarbonate 24 mmol/L (22 - 29)

Urea 6.8 mmol/L (2.0 - 7.0)

Creatinine 101 µmol/L (55 - 120)

Albumin 18 g/L (35-50)

What initial course of action is appropriate here?

A.Anticoagulate and repeat Doppler in one week

B.Commence oral prednisolone

C.Contact nephrologist to organise renal biopsy

D.Organise plasma exchange

E.Start IV cyclophosphamide

Answer:Commence oral prednisolone

Explanation:

Minimal change glomerulonephritis - prednisolone

Important for meLess important

The correct answer is to commence oral prednisolone. This patient has developed nephrotic syndrome which in children is most commonly due to minimal change disease. The majority of cases are responsive to corticosteroids and this is recommended as the first-line treatment on suspicion of the diagnosis.

Cyclophosphamide is incorrect. This may be used as a steroid-sparing agent later in management, but would not be the first-line treatment for minimal change disease.

Plasma exchange is not a treatment for minimal change disease. It is used for antibody-mediated renal diseases such as anti-GBM disease and ANCA-associated vasculitis. These would be very unusual in a patient of this age.

Renal biopsy in children is reserved for failure of steroid treatment, high suspicion of an alternative diagnosis, or declining renal function on a calcineurin inhibitor. It is not without risk so should be used in more complex cases. Nephrotic syndrome in young patients is usually due to minimal change disease and empirical treatment with steroids if recommended without proceeding to biopsy.

Repeat Doppler could be considered if there is a high suspicion of DVT but in this case, there is a clear alternative diagnosis causing the leg swelling. Repeat doppler after a negative scan rarely shows DVT, with only 2% positivity in one review.

Question:

A 45-year-old woman presents to the GP with a 9-month history of worsening intermittent right upper quadrant pain that is worse when eating fatty foods. Recently, she has started to have nausea, pruritus, and weight loss. She has a history of ulcerative colitis and has had these symptoms for a while and has now decided to seek help.

On examination, she is afebrile, her pulse is 85 bpm, and her blood pressure is 128/75 mmHg. Scleral icterus is seen and a non-tender mass is palpable in the right upper quadrant.

Based on these features, what is the most likely cause of her current presentation?

A.Acute cholangitis

B.Cholangiocarcinoma

C.Common bile duct stones

D.Hepatocellular carcinoma

E.Pancreatic carcinoma

Answer:Cholangiocarcinoma

Explanation:

Cholangiocarcinoma develops in around 10% of primary sclerosing cholangitis patients

Important for meLess important

Cholangiocarcinoma is correct. The presence of slowly worsening jaundice alongside unexplained weight loss should raise suspicion of malignancy, including cholangiocarcinoma and pancreatic cancer. The presence of a palpable mass in the right upper quadrant (RUQ) supports these diagnoses, as Courvoisier's law states that a palpable mass in the RUQ is more likely to be a malignant obstruction of the common bile duct rather than obstruction due to stones. Since this patient has ulcerative colitis (UC) and has had these symptoms for a while, with her symptoms worsening recently, it is likely that they have cholangiocarcinoma, as patients with UC can develop primary sclerosing cholangitis (PSC) which can increase the risk of cholangiocarcinoma.

Common bile duct stones is incorrect. Although this can also cause jaundice and may have a right upper quadrant mass, common bile duct stones causing these symptoms are much less common than pancreatic cancer and cholangiocarcinoma. Common bile duct stones would also not explain the weight loss this patient has experienced. NICE also recommends referring patients via a suspected cancer pathway for an urgent ultrasound if patients have an upper abdominal mass consistent with an enlarged gallbladder. Therefore, this diagnosis is less likely.

Hepatocellular carcinoma (HCC) is incorrect as patients with HCC tend to present with features of acutely worsening chronic liver disease. The absence of signs such as ascites, asterixis, peripheral oedema, hepato- and/or splenomegaly, and a history of variceal bleeding makes HCC less likely.

Pancreatic carcinoma is incorrect. Although this can also cause jaundice, a RUQ mass, and weight loss, this patient has a history of UC. It is likely that this patient has had PSC which has led to the development of cholangiocarcinoma, as PSC increases the risk of cholangiocarcinoma. Patients with pancreatic cancer may also have epigastric or back pain which is not seen in cholangiocarcinoma.

Acute cholangitis is incorrect as this presents acutely with a triad of RUQ pain, fever, and jaundice. This patient is afebrile, her symptoms have been ongoing for a while, and there is no RUQ pain. Furthermore, acute cholangitis does not explain the presence of a mass in the RUQ, which should always raise suspicion of malignancy.

Question:

A 46-year-old woman presents to the emergency department with persistent bloody diarrhoea, abdominal pain and fever. Her past medical history includes Crohn's disease. A diagnosis of an acute flare of Crohn's is suspected. She is admitted to the gastroenterology ward and commenced on a course of methotrexate.

Which of the following may be a side-effect of her treatment?

A.Acute respiratory distress syndrome

B.Increase in appetite

C.Leukoplakia

D.Pneumonitis

E.Telogen effluvium

Answer:Pneumonitis

Explanation:

Methotrexate may cause pneumonitis - typically presents with cough, dyspnoea and fever

Important for meLess important

Pneumonitis is a recognised side-effect. If not promptly recognised pneumonitis can lead to irreversible pulmonary fibrosis. Hence the BNF recommends that the patient seeks medical attention if they experience dyspnoea, cough or fever; and that the physician should monitor for symptoms at each visit and discontinue if pneumonitis is suspected.

Acute respiratory distress syndrome is not a recognised side effect.

Telogen effluvium, a thinning of the hair, is not seen with methotrexate therapy. Other hair related side effects, such as alopecia, have been reported.

Leukoplakia is not seen with methotrexate therapy, however it may be seen in conditions such as HIV that suppress the immune system to a greater extent.

Methotrexate does not cause an increase in appetite, a decrease is more common.

Question:

A 28-year-old man who has sex with men (MSM) presents to the genitourinary medicine (GUM) clinic complaining of pain during receptive intercourse for the last week. During this time he has also noticed fresh rectal bleeding from the rectum and a white-yellow discharge. He also recalls having a painless penile ulcer about one month ago, but this seems to have resolved itself now.

The patient is known to be HIV positive and is receiving treatment for this: his last appointment was 3 months ago and showed an undetectable viral load. He has several regular sexual partners and does not use condoms.

Observations are all within the normal range. On examination, you notice left-sided inguinal lymphadenopathy which is tender to touch. Rectal examination is limited by pain but peri-anal ulceration and a blood-stained mucopurulent discharge can be seen.

What is the most likely diagnosis?

A.Behcet's disease

B.Chancroid

C.Genital herpes

D.Lymphogranuloma venereum

E.Syphilis

Answer:Lymphogranuloma venereum

Explanation:

Painless genital pustule → ulcer → painful inguinal lymphadenopathy → proctocolitis - lymphogranuloma venereum

Important for meLess important

This patient has lymphogranuloma venereum (LGV) which is caused by three serovars of Chlamydia trachomatis. Primary LGV infection causes a single painless pustule which develops into an ulcer - this is on the coronal sulcus of this penis in men, and the posterior vaginal wall or vulva in women. This pustule/ulcer lasts a few days-weeks and may go unnoticed. The secondary stage occurs weeks after the primary infection and causes painful inguinal lymphadenopathy, which is usually unilateral but can be bilateral. The classic 'groove sign' (inguinal ligament separating inguinal and femoral lymph nodes) is pathognomonic but rarely seen in practice. Proctocolitis may then develop, important risk factors being MSM and HIV infection. This causes rectal bleeding and discharge, and ulceration around the anus.

Behcet's disease is a rare type of vasculitis which causes oral and genital ulceration. The rectal symptoms in this case make Behcet's disease an unlikely cause.

Chancroid is caused by Haemophilus ducreyi infection and is very rare in Europe. It too can cause tender inguinal lymphadenopathy and penile ulceration, however, the ulcer(s) would be painful. Chancroid would not usually cause rectal symptoms.

Genital herpes is another cause of genital ulceration, due to herpes simplex virus 1/2. This would cause multiple painful ulcers and not rectal symptoms.

Syphilis - primary infection would cause a single painless ulcer, similarly to LGV. However the rectal symptoms and inguinal lymphadenopathy are much more in keeping with LGV.

Question:

A 62-year-old female with a history of Grave's disease presents with nausea, lethargy and abdominal pain. Examination reveals increased pigmentation of the buccal mucosa. Which one of the following is the best investigation to confirm the suspected diagnosis of Addison's?

A.Short ACTH test

B.Early morning ACTH

C.Dexamethasone suppression test

D.Oral glucose tolerance test with GH measurements

E.Anti-21-hydroxylase antibodies

Answer:Short ACTH test

Explanation:

The short synacthen test is the best test to diagnose Addison's disease

Important for meLess important

Question:

A 4-year-old boy is noted to have macrocephaly and learning difficulties. What is the most likely diagnosis?

A.Patau syndrome

B.Pierre-Robin syndrome

C.Edward's syndrome

D.Fragile X

E.William's syndrome

Answer:Fragile X

Explanation:

A young boy is noted to have learning difficulties, macrocephaly, large ears and macro-orchidism - fragile X

Important for meLess important

Question:

A 71-year-old female with dry age-related macular degeneration is reviewed. Unfortunately her eyesight has deteriorated over the past six months. She has never smoked and is taking antioxidant supplements. What is the most appropriate next step?

A.Retinal transplant

B.Intravitreal ranibizumab

C.Explain no other medical therapies currently available

D.Photodynamic therapy

E.Photocoagulation

Answer:Explain no other medical therapies currently available

Explanation:

Question:

A 27-year-old male presents to the emergency department feeling generally unwell. His temperature is 38.1ºC. A new systolic murmur is heard. Based on these findings, a diagnosis of subacute bacterial endocarditis is assumed and transthoracic echocardiography is ordered. The following is a summary of the report:

There is normal left ventricular wall thickness with borderline normal function (EF 50%). Normal right ventricular wall thickness with normal function. Vegetations seen on the x with regurgitation and impaired flow.

Which structure is x most likely to represent?

A.Aortic valve

B.Mitral valve

C.Papillary muscle

D.Pulmonary valve

E.Tricuspid valve

Answer:Mitral valve

Explanation:

In infective endocarditis, the mitral valve is most commonly affected

Important for meLess important

The valves most commonly affected by infective endocarditis are (in decreasing order of frequency): mitral valve, aortic valve, combined mitral and aortic valve, tricuspid valve, pulmonary valve (rare).

Question:

A 67-year-old man presents to the emergency department with acute-onset diffuse abdominal pain. He has a past medical history of gastro-oesophageal reflux disease that is well-controlled with omeprazole and newly-diagnosed atrial fibrillation for which he was recently started on warfarin. The patient does not smoke or drink alcohol.

His temperature is 37.8ºC, his pulse is 96 bpm, and his blood pressure is 135/75 mmHg. Palpation of the abdomen reveals extreme diffuse tenderness out of keeping with his presentation and generalised guarding.

What is the most likely diagnosis?

A.Acute diverticulitis

B.Acute mesenteric ischaemia

C.Ischaemic colitis

D.Perforated peptic ulcer

E.Ruptured abdominal aortic aneurysm

Answer:Acute mesenteric ischaemia

Explanation:

Severe, sudden abdominal pain + out-of-keeping physical exam findings + AF → ?acute mesenteric ischaemia

Important for meLess important

Acute mesenteric ischaemia is correct. Severe abdominal pain that is out of keeping with exam findings on a background of conditions predisposing to blood vessel occlusions such as atrial fibrillation (AF) and cardiovascular disease suggests a diagnosis of acute mesenteric ischaemia. This can be thought of as the gastrointestinal equivalent of a myocardial infarction secondary to sudden occlusion of a blood vessel. This patient has recently been diagnosed with AF and has started warfarin, therefore, it is likely that his AF has resulted in the formation of thrombi which have embolised to the mesenteric vasculature.

Acute diverticulitis is incorrect. Although this can present similarly, patients classically have pain in the lower left quadrant and patients have a history of diverticular disease, characterised by intermittent abdominal pain, constipation, and bloating. This patient has no history of diverticular disease or a history of chronic constipation, making this diagnosis less likely.

Ischaemic colitis is incorrect as this typically presents with bloody diarrhoea and is less severe than acute mesenteric ischaemia, often resolving spontaneously. Since this patient's abdominal pain is severe and out of keeping with examination findings, acute mesenteric ischaemia is more likely.

Perforated peptic ulcer is incorrect. Although gastro-oesophageal reflux disease (GORD) is a risk factor for the development of peptic ulcers, this patient's GORD is well-controlled with omeprazole. There is also no preceding history suggesting the presence of peptic ulcers (such as pain that is worse when eating (suggesting a gastric ulcer), or pain that is relieved when eating (suggesting a duodenal ulcer)), therefore making this diagnosis less likely.

Ruptured abdominal aortic aneurysm (AAA) is incorrect as this tends to present with severe central abdominal pain radiating to the back and a pulsatile and expansile abdominal mass may be felt on palpation. Due to the severity of a ruptured AAA, patients are often haemodynamically unstable (i.e. they have tachycardia and hypotension), which is not seen here as the patient is relatively stable.

Question:

A 42-year-old man has been managed on the gastroenterology ward for an episode of spontaneous bacterial peritonitis for the past two weeks. He is an alcoholic (drinking a litre of whisky per day before he was admitted) and has liver cirrhosis. Prior to this admission, he took no medications and he has no drug allergies. His peritonitis has resolved and he is keen to engage with outpatient alcohol services to ensure he does not resume drinking. As part of his discharge, he has been prescribed spironolactone, lactulose, vitamins, and propranolol.

Which additional medication should be included on his discharge prescription?

A.Aspirin

B.Ciprofloxacin

C.Furosemide

D.Naproxen

E.Ramipril

Answer:Ciprofloxacin

Explanation:

Patients who have had an episode of SBP require antibiotic prophylaxis

Important for meLess important

This patient has had an episode of SBP and, as such, requires antibiotic prophylaxis to reduce the likelihood of further episodes. It is used to selectively decontaminate the GI tract to reduce further episodes due to the high mortality rate associated with SBP. This is usually with ciprofloxacin.

Aspirin is not recommended in cirrhotic patients due to the risk of acute renal failure and bleeding (unless in low-dosage in patients whose cardiovascular disease risk outweighs the cirrhosis disease burden). There is no evidence in the vignette of severe cardiac disease and, as such, aspirin should be avoided in this patient.

Naproxen is not recommended in cirrhotic patients for the same reasoning as aspirin - there is an increased risk in these patients of acute renal failure and bleeding.

Furosemide is not necessary for patients whose fluid overload is well controlled with spironolactone. It is usually only started if single diuretic management is inadequate. There is a risk of electrolyte derangement with the use of combined diuretic therapy and, as such, this is not the most appropriate answer out of the options listed.

Ramipril is an ACE inhibitor and carries a risk of hepatotoxicity. It is associated with serum aminotransferase elevations (the aetiology of this is not fully understood) and there are documented cases of cirrhosis secondary to ACE inhibitor use. Due to the patient's history of cirrhosis and no documentation in the vignette of any hypertension, this patient should not be prescribed ramipril.

Question:

A 39 year-old woman presents to her general practitioner with a grape-sized breast lump that she noticed one week ago whilst in the bath. It is firm and non-tender, with no surrounding skin changes. She feels well in herself with no temperatures, and has no history of breast disease. She stopped breastfeeding one month ago. An ultrasound scan shows a well-circumscribed lesion and aspiration yields a white fluid. What is the likely diagnosis?

A.Breast abscess

B.Fat necrosis

C.Breast cancer

D.Fibrocystic change

E.Galactocele

Answer:Galactocele

Explanation:

The ultrasound findings and aspiration results make fibrocystic change, breast cancer and fat necrosis unlikely.

Question:

A 48-year-old woman is admitted following presentation to the emergency department with a 5 day history of severe vomiting and diarrhoea following a recent trip to Africa. She feels weak and lethargic, and has been struggling to keep down food and drink.

On initial assessment, she has dry mucous membranes, reduced skin turgor, cool extremities and a non-visible jugular venous pressure. She is producing dark brown urine and is clinically oliguric over 24 hour measurement.

Her initial blood tests reveal:

Urea 33 mmol/L (2.0 - 7.0)

Creatinine 320 µmol/L (55 - 120)

She is given fluid therapy and antibiotic treatment for her gastroenteritis. Three days later she appears clinically rehydrated, and is apyrexial, but still oliguric, however her blood tests reveal:

Urea 39 mmol/L (2.0 - 7.0)

Creatinine 510 µmol/L (55 - 120)

Urinalysis and microscopy reveals muddy brown granular casts.

What is the cause of her deteriorating urea and creatinine?

A.Obstructive uropathy

B.Ongoing pre-renal AKI

C.Acute tubular necrosis

D.Glomerulonephritis

E.Acute interstitial nephritis

Answer:Acute tubular necrosis

Explanation:

Acute tubular necrosis is associated with granular, muddy-brown urinary casts

Important for meLess important

This patient has experienced a prolonged period of dehydration and pre-renal acute kidney injury (AKI) secondary to bacterial gastroenteritis. Hypovolaemia reduces glomerular perfusion and filtration rates, which over time causes renal cell hypoxia and necrosis of the renal tubular epithelium. This is the mechanism of renal injury in this case, but acute tubular necrosis (ATN) can arise from other means e.g. sepsis or nephrotoxic agents.

Option 1: incorrect - given that this patient is still passing urine, but is only oliguric, suggests it is unlikely to be a bilateral obstruction. While it is possible that there is a unilateral obstruction, the history points more towards acute tubular necrosis as the predominant cause of renal injury.

Option 2: incorrect - this patient has definitely had a pre-renal AKI contributing to deranged initial renal function results. However, the failure to respond to fluids is a hallmark that hypovolaemia is no longer the direct cause of renal injury, and that the dysfunction is now intrinsic to the renal parenchyma itself.

Option 3: correct - this patient has signs that suggest ATN as the aetiology of unresolving renal dysfunction despite fluid therapy. These include: granular renal cell casts, which are collections of dead renal tubular cells sloughing in the tubular lumen, and a normal urea:creatinine ratio with both raised above baseline. This would not be seen in pre-renal AKI, which features a raised urea:creatinine ratio due to enhanced passive proximal reabsorption of urea that accompanies sodium in a hypovolaemic state.

Option 4: incorrect - while glomerulonephritis is a cause of intrinsic renal dysfunction, it is typically slower in onset and does not usually occur on the background of ongoing pre-renal AKI, rather on the background of secondary disease or in the presence of toxic drugs. While the syndrome is indeed vast, it is typically associated with proteinuria, haematuria or both, neither of which are displayed here.

Option 5: incorrect - while it is an excellent thought that both the gastrointestinal bacterial infection as well as the antibiotic therapy could cause acute interstitial nephritis, the classic triad of rash, fever and eosinophilia are all not present. Moreover, the urine sediment, if present, is more likely to be white cell (and/or red cell) casts/pyuria.

Question:

A 35-year-old woman who gave birth two weeks ago is becoming very tired after walking to the shops and back. The birth was via a caesarean section and she required two units of blood to be transfused. She presents to her general practitioner and denies any chest pain, palpitations, shortness of breath, or further bleeding.

On examination, there are no signs of further active bleeding and the caesarean section scar is healing well.

Blood results are as follows:

Hb 93 g/L Female: (115 - 160)

Platelets 230 \* 109/L (150 - 400)

WBC 6.8 \* 109/L (4.0 - 11.0)

Ferritin 5 µg/L (15 - 300)

What is the haemoglobin cut-off for this patient to receive iron?

A.<100 g/L

B.<105 g/L

C.<110 g/L

D.<120 g/L

E.<125 g/L

Answer:<100 g/L

Explanation:

A cut-off of 100 g/Lshould be used in the postpartum period to determine if iron supplementation should be taken

Important for meLess important

<100 g/L is the correct answer as the cut-off to determine if iron supplementation is required for this postpartum woman. The oral iron should be continued for 3 months after the ferritin has been normalised to ensure adequate stores for haem production and efficient oxygen delivery to the tissues.

<105 g/L is incorrect as this is the cut-off for iron supplementation if this woman was in her second or third trimester of pregnancy.

<110 g/L is incorrect as this is the cut-off for iron supplementation if this woman was in her first trimester of pregnancy.

<120 g/L is incorrect as this is not a recognised cut-off for iron supplementation. However, it is up to the doctor's discretion and guided by the patient’s symptoms whether or not to give iron for anaemia.

<125 g/L is an incorrect answer as it is not a recognised cut-off for iron to be given. However, a haemoglobin level of less than this in men would prompt further investigations of potential bleeding sources.

Question:

A 12-year-old boy presents to the GP with his mother complaining of seizures. This has happened twice in the last three weeks, starting with the child becoming rigid, and then making uncontrolled jerking movements with his arms and legs for around a minute. Both episodes occurred in the morning.

His mother also reveals that over the same time period, he has been suffering from uncontrolled arm movements shortly after waking up, causing him to drop things repeatedly at breakfast. His examination is unremarkable, and he has no past medical history or recent illness.

What is the most likely diagnosis?

A.Absence (petit mal) seizures

B.Benign Rolandic epilepsy

C.Febrile convulsions

D.Generalised tonic-clonic (grand-mal) epilepsy

E.Juvenile myoclonic epilepsy

Answer:Juvenile myoclonic epilepsy

Explanation:

Juvenile myoclonic epilepsy is classically associated with seizures in the morning/following sleep deprivation

Important for meLess important

The correct answer is juvenile myoclonic epilepsy. This patient is presenting with generalised tonic-clonic seizures (GTCS) and myoclonic episodes shortly after waking. This is a classic pattern of juvenile myoclonic epilepsy, an epilepsy syndrome that is generally seen in those 12-16 years of age. Absence seizures can also occur throughout the day in this condition.

Absence (petit mal) seizures is incorrect in this case. This patient is presenting with both GTCS and myoclonic episodes soon after waking, typical of juvenile myoclonic epilepsy. Absence seizures typically present with short periods of non-responsiveness or staring into space, often picked up by teachers or parents, typically with a short post-ictal period of lethargy.

Benign Rolandic epilepsy is incorrect. This syndrome is also sometimes known as childhood epilepsy with centrotemporal spikes on an electroencephalogram. Typically this epilepsy syndrome is seen in children aged 3-13yrs and is characterised by short seizures that involve twitching and paraesthesia of one side of the face and tongue. The GTCS and myoclonic seizures seen in this patient are not commonly seen in benign Rolandic epilepsy.

Generalised tonic-clonic epilepsy is incorrect in this case. Whilst this patient is presenting with GTCS, they are also experiencing myoclonic episodes that contribute to the diagnosis of juvenile myoclonic epilepsy. The uncontrolled arm movements with retention of consciousness indicate there is another side to their diagnosis than GTCS alone.

Febrile convulsions is incorrect. This patient is presenting with a pattern of seizures characteristic of juvenile myoclonic epilepsy. Febrile convulsions are typically seen in younger children secondary to a viral illness or another cause of pyrexia. These children will often have a short, isolated seizure that can look like GTCS. This child has an unremarkable examination and reports no recent illness making febrile convulsions unlikely.

Question:

A 35-year-old woman has a 3-month history of shortness of breath on exertion, a dry cough, and tight skin over her upper arms and thighs. She denies any muscle weakness or joint pain and has no other associated symptoms. Her mother has a history of psoriasis.

On examination, the skin overlying the proximal upper and lower limbs is hardened tight and there is no evidence of ulceration or swelling of the hands or feet. On auscultation of the chest, bilateral fine end-inspiratory crackles are heard.

What autoantibodies are most associated with the likely cause of her presentation?

A.Anti-Jo-1 antibodies

B.Anti-Mi-2 antibodies

C.Anti-Ro antibodies

D.Anti-Scl-70 antibodies

E.Anti-centromere antibodies

Answer:Anti-Scl-70 antibodies

Explanation:

Diffuse cutaneous systemic sclerosis is associated with anti Scl-70 antibodies

Important for meLess important

The presence of skin tightening should raise suspicion of systemic sclerosis (SSc), which can be divided into limited cutaneous SSc and diffuse cutaneous SSc. Since this patient's features are more acute in onset, the skin affected is the skin of the proximal limbs, and she has evidence of interstitial lung disease (shortness of breath, dry cough, and crackles on auscultation), she is likely to have diffuse cutaneous SSc.

Anti-Scl-70 antibodies is correct as of the options listed, these autoantibodies are most associated with diffuse cutaneous SSc.

Anti-Jo-1 antibodies is incorrect as this is associated with polymyositis and dermatomyositis, which are both characterised by proximal muscle weakness, which is not present. Dermatomyositis is also associated with skin manifestations such as Gottron's papules (roughened red papules over the extensor surfaces of the fingers), 'mechanic's hands' which describe extremely dry and scaly hands, and a heliotrope rash in the periorbital region. These features are not seen, therefore making this option less likely.

Anti-Mi-2 antibodies is incorrect as this is associated with dermatomyositis. This patient has no proximal muscle weakness, making this option less likely, and no skin manifestations such as Gottron's papules, 'mechanic's hands', and a heliotrope rash as mentioned above are present.

Anti-Ro antibodies is incorrect as this is associated with Sjögren's syndrome, whose main features are dry eyes, dry mouth, and vaginal dryness. These features are not seen in this patient and Sjögren's syndrome would not explain the skin tightness, shortness of breath, and dry cough seen in this patient.

Anti-centromere antibodies is incorrect as this is associated with limited cutaneous SSc. This form tends to present over a longer time period and is not associated with internal organ involvement (such as the lungs in this case) and tends to affect the distal limbs predominantly, rather than the proximal limbs. A subtype of limited cutaneous SSc is CREST syndrome which has Calcinosis, Raynaud's phenomenon, oEsophageal dysmotility, Sclerodactyly, and Telangiectasia. These features are not seen here.

Question:

A 48-year-old gentleman with known oesophageal varices is admitted following an upper gastrointestinal bleed. He undergoes an endoscopy and is treated with band ligation, however, he continues to have haematemesis. You discuss the case with the gastroenterology consultant who suggests referral to a tertiary liver centre for a transjugular intrahepatic portosystemic shunt (TIPS). A transjugular intrahepatic portosystemic shunt procedure connects which two vessels?

A.Internal jugular vein and hepatic vein

B.Internal jugular vein and portal vein

C.Hepatic artery and hepatic vein

D.Hepatic artery and portal vein

E.Hepatic vein and portal vein

Answer:Hepatic vein and portal vein

Explanation:

A transjugular intrahepatic portosystemic shunt (TIPS) procedure connects the hepatic vein to the portal vein

Important for meLess important

This is a fact based question. A TIPS procedure usually connects the hepatic vein and the portal vein, although can connect the portal vein to the IVC. It aims to treat portal hypertension by making route for blood to flow from the portal circulation to the systemic circulation, bypassing the liver.

Question:

A 71-year-old patient with a 2-month history of a cough and associated weight loss shows a suspicious lung mass on chest X-ray. Which of the following is the most appropriate next step?

A.MRI scan

B.Ultrasound guided biopsy

C.Non-contrast CT scan

D.Contrast-enhanced CT scan

E.PET scan

Answer:Contrast-enhanced CT scan

Explanation:

NICE recommends that patients with known or suspected lung cancer are offered a contrast-enhanced CT scan of the chest, liver and adrenals.

MRI is not usually used to assess non-small cell lung cancer.

Biopsy should not be performed before a CT scan.

Non-contrast CT scan is less accurate than contrast CT scan in this setting, and so is not advised.

PET scan should not be offered at this stage.

References:

NICE (2011). Lung cancer: diagnosis and management.

Question:

You are a doctor on the acute medical ward. One of your patients is a 25-year-old man who is being treated for paracetamol poisoning. Your senior asks you to order some blood tests to assess the severity of his condition, particularly if there is any evidence of acute liver failure.

Which one of the following results would most support this diagnosis?

A.Prothrombin time (PT) 28 seconds (10-14 seconds)

B.Albumin 30 g/L (35-50 g/L)

C.Creatinine 250 umol/L (55-120 umol/L)

D.Platelet count 500 \* 109/L (150-400 \* 109/L)

E.ALT 1465 iu/L (3-40 iu/L)

Answer:Prothrombin time (PT) 28 seconds (10-14 seconds)

Explanation:

Prothrombin has a shorter half-life than albumin, making it a better measure of acute liver failure

Important for meLess important

Prothrombin time (PT) 28 seconds is the correct answer. Prothrombin time is the most accurate determinate of acute liver failure as it is a measurement of the liver's synthetic function.

Albumin 30 g/L is incorrect. Although albumin is also a good measure of the liver's synthetic function, it has a longer half-life than prothrombin and is therefore less useful in acute liver failure.

ALT 1465 iu/L is incorrect. Whilst ALT is a good measure of hepatotoxicity in paracetamol poisoning, it is not a measure of synthetic function so is an inferior test for assessing acute liver failure.

Creatinine 250 umol/L is incorrect. Raised creatinine is a better measure of renal disease.

Platelet count 500 \* 109/L is incorrect. A raised platelet count can be caused by inflammation and infection. In chronic liver disease, the platelet count may be low.

Question:

A 56-year-old man attends his general practitioner for a review of his chronic obstructive pulmonary disease (COPD).

He currently takes a daily combination inhaler containing beclomethasone and formoterol, and stopped smoking when he was diagnosed 12-years ago.

When questioned, he reports that he usually uses his salbutamol inhaler four times daily, and once or twice in the night when he wakes up short of breath. This has been the case for the past 6-months.

Based on the above information, what is the most appropriate course of action for the general practitioner?

A.Long-term oxygen therapy (LTOT)

B.No change

C.Oral azithromycin prescription

D.Oral theophylline prescription

E.Tiotropium prescription

Answer:Tiotropium prescription

Explanation:

COPD - still breathless despite using SABA/SAMA and a LABA + ICS → add a LAMA

Important for meLess important

This patient is suffering from uncontrolled COPD. He is already taking a daily long-acting beta-agonist (LABA), such as formoterol and an inhaled corticosteroid (ICS), such as beclomethasone. The next step in this patient's management would be to add a long-acting muscarinic antagonists (LAMA), such as tiotropium.

LTOT refers to home-oxygen prescribed to patients for 15-hours a day. The criteria for assessing a patient for the need for LTOT include any one of cyanosis, polycythaemia, raised JVP, FEV1 < 30%, oxygen saturations <92% or peripheral oedema, none of which are mentioned in this patient. A patient who meets any of this criteria should have an arterial blood gas (ABG) performed. It the ABG shows a Pa02 < 7.3, the patient qualifies for LTOT. Similarly, a Pa02 between 7.3-8 in the presence of secondary polycythaemia, pulmonary hypertension or peripheral oedema also qualify the patient for LTOT.

No change to this patient's current management would be inappropriate. Using a reliever inhaler four times a day and waking at night due to symptoms indicate that disease is uncontrolled.

Oral azithromycin can be used as prophylaxis against chest infections in patients with COPD. This treatment is given to patients who are on optimum treatment and have stopped smoking, but are still experiencing exacerbations of their disease. The nature of this patient's presentation suggests that this is uncontrolled disease, rather than infective exacerbations. However, if this patient were to have frequent infective exacerbations, first line of management would still be to optimise the treatment ladder, before adding prophylactic antibiotics.

Oral theophylline is a management option for patients with uncontrolled COPD. However, it is generally reserved for those who cannot tolerate inhaled therapy or have failed with optimum inhaled treatment, neither of which is true for this patient.

Question:

A 18-year-old male is admitted after deliberately ingesting 40 grams of paracetamol. Twenty-four hours after admission he is reassessed with a view to liver transplantation. Of the following, which one would most strongly indicate the need for a liver transplant?

A.CRP 306

B.Arterial pH 7.25

C.Creatinine 267 µmol/l

D.Grade IV encephalopathy

E.INR 5.7

Answer:Arterial pH 7.25

Explanation:

Liver transplantation criteria in paracetamol overdose: pH < 7.3 more than 24 hours after ingestion

Important for meLess important

The arterial pH is the single most important factor. The creatinine, encephalopathy grade and INR must all be grossly abnormal otherwise

Question:

You are reviewing a 48-year-old female in general practice who has a new diagnosis of pulmonary fibrosis. You review her medication history. Which of the following medications could be a cause of her pulmonary fibrosis?

A.Nitrofurantoin

B.Bisoprolol

C.Warfarin

D.Salbutamol inhaler

E.Calcium with colecalciferol

Answer:Nitrofurantoin

Explanation:

Nitrofurantonin may cause pulmonary fibrosis

Important for meLess important

Pulmonary fibrosis has a wide range of possible causes. One group of causes is drug induced.

All drugs have side effects but the medications most commonly associated with pulmonary fibrosis are ;

Antibiotics - especially nitrofurantoin

Amiodarone

Chemotherapy

Methotrexate

Bisoprolol, warfarin, salbutamol and Adcal-D3 all have other potential side effects but are not associated with the development of pulmonary fibrosis.

Question:

A 55-year-old man is seen in secondary care with a 3-month history of aches, swelling in his legs, and itchy dry skin. His symptoms are worse on exertion and when standing, particularly at the end of the day when he notices the swelling is most prominent. He states the symptoms do not significantly impact his life. He has a history of obesity and smokes 30 cigarettes daily.

An examination reveals the following:

© Image used on license from DermNet NZ

What is the most appropriate next step in his management?

A.Monitor and prescribe atorvastatin and clopidogrel

B.Prescribe an emollient and give graduated compression stockings

C.Refer for endovascular revascularisation

D.Refer for supervised exercise training programme

E.Refer for surgical revascularisation

Answer:Prescribe an emollient and give graduated compression stockings

Explanation:

Prescribe an emollient and give graduated compression stockings is correct. This patient has evidence of chronic venous insufficiency given their history of obesity and lower limb swelling that is worse at the end of the day. The image shows lipodermatosclerosis, which describes hard and tight skin, and hyperpigmentation due to haemosiderin deposition. These findings support the diagnosis of chronic venous insufficiency. Given that the patient's symptoms are not significantly impacting his activities of daily living, the most appropriate initial step would be to prescribe an emollient for the dry skin and give graduate compression stockings, which is the mainstay of treatment for oedema, and lipodermatosclerosis he is experiencing. If this first-line management is unsuccessful, a referral to secondary care could be made.

Monitor and prescribe atorvastatin and clopidogrel is incorrect. This would be appropriate if this patient had peripheral arterial disease (PAD), however, these features suggest chronic venous insufficiency as a more likely diagnosis. PAD would present with intermittent claudication (aching or burning in the legs following walking), and possibly pallor and diminished pulses. Lipodermatosclerosis and hyperpigmentation secondary to haemosiderin deposition shown in the image alongside this patient's presentation make PAD less likely.

Refer for endovascular revascularisation is incorrect. This is a management step for patients with peripheral arterial disease (PAD), which is a less likely diagnosis given that there is no mention of intermittent claudication (aching or burning in the legs following walking) or other associated features such as pallor and diminished pulses. Lipodermatosclerosis and hyperpigmentation secondary to haemosiderin deposition shown in the image alongside this patient's presentation make chronic venous insufficiency more likely.

Refer for surgical revascularisation is incorrect. Similarly to the above, this is a management step for patients with peripheral arterial disease (PAD). Features such as intermittent claudication, pallor, and reduced pulses are not present, making PAD less likely.

Refer for supervised exercise training programme is incorrect. This is the initial management step for patients with peripheral arterial disease (PAD), which would present with features such as intermittent claudication, pallor, and reduced pulses, which are not present in this patient. The first-line management step in patients with chronic venous insufficiency is the use of emollients and graduated compression stockings.

Question:

A 34-year-old woman is referred to the endocrinology clinic with symptoms of anxiety and significant weight loss. She reports feeling unusually hot all the time. Blood tests are as follows:

TSH 0.03 (0.27 - 4.20 mU/l)

Free T4 37 (10.0 - 23.0 pmol/l)

The endocrinologist arranges a nuclear scintigraphy scan which reveals patchy uptake.

What is the most likely diagnosis?

A.Grave's disease

B.Hashimoto's disease

C.Iodine deficiency

D.Solitary adenoma

E.Toxic multinodular goitre

Answer:Toxic multinodular goitre

Explanation:

In toxic multinodular goitre, nuclear scintigraphy reveals patchy uptake

Important for meLess important

The combination of hyperthyroid symptoms, blood results, and patchy uptake on nuclear scintigraphy point towards a diagnosis of toxic multinodular goitre. This is a common cause of hyperthyroidism in which there is excess production of thyroid hormones from functionally autonomous thyroid nodules.

In Graves disease, scintigraphy would show diffuse enlargement of both thyroid lobes, with uniform uptake throughout. Grave's is an autoimmune disorder and the most common cause of hyperthyroidism.

Hashimoto's disease typically presents with symptoms of hypothyroidism as opposed to hyperthyroidism. Hashimoto's is an autoimmune condition.

Iodine deficiency leads to hypothyroidism, as iodine is used to make thyroid hormones. This is uncommon in the developed world but may be seen in developing countries.

A solitary adenoma would present similarly to toxic multinodular goitre, but you would expect nuclear scintigraphy to show a small focus of uptake.

Question:

A 70-year-old man presents with shortness of breath and palpitations. He has a history of congestive cardiac failure, hyperthyroidism and diabetes.

On examination, his pulse is 75 bpm and irregular, his blood pressure is 135/72 mmHg, and he is afebrile. An ECG is performed:

© Image used on license from Dr Smith, University of Minnesota

Given the likely diagnosis and the above information, what is the most appropriate long-term management for this patient?

A.Aspirin

B.Enoxaparin

C.No medication necessary

D.Rivaroxaban

E.Warfarin

Answer:Rivaroxaban

Explanation:

Rivaroxaban is correct. The electrocardiogram shows an irregularly irregular rhythm with inconsistent/absent p waves. This patient has presented with atrial fibrillation. His symptoms are shortness of breath and palpitations and his signs are an irregular pulse, confirmed on the electrocardiogram. Note the lack of visible p waves in front of every QRS complex and the lack of regular rhythm (compare the distance between two 'R's on the QRS complexes.) This is termed an irregularly irregular rhythm and is diagnosed as atrial fibrillation. For patients with atrial fibrillation, one must calculate their CHA2DS2-VASc score. In this case, it is 3 (congestive cardiac failure, age 65-74 years, diabetes). Since this score is above 0-1, anticoagulation is indicated. Oral anticoagulation using a DOAC such as rivaroxaban is now the first-line recommended management for long-term risk reduction in strokes for these patients.

Aspirin is incorrect. This would reduce the risk of atherosclerotic (arterial) risks such as myocardial infarction but not the risk of venous clots which are targeted by anticoagulation. The risks of taking aspirin outweigh any benefits of taking it as monotherapy for stroke prevention in adults with atrial fibrillation.

Enoxaparin is incorrect. Although this is an anticoagulant and would reduce the risk of clots and strokes, it is a subcutaneous injection and is not the first-line drug for the prevention of stroke in atrial fibrillation. It is commonly used for venous thromboembolism prophylaxis during pregnancy or for inpatients awaiting surgery.

No medication necessary is incorrect. This patient is at high risk of having a stroke and needs anticoagulation. The risk increases as the CHA2DS2-VASc score increases. Since this score is above 0-1, anticoagulation is indicated.

Warfarin is incorrect. Although warfarin is an anticoagulant and would be effective in reducing stroke risk, it is no longer first-line for patients with atrial fibrillation that are being anticoagulated. This is because DOACs such as rivaroxaban do not require monitoring and are therefore easier for patients. Warfarin has a narrow therapeutic index and must be monitored by checking the international normalised ratio. It also has many drug interactions which are less common in DOACs.

Question:

A 35-year-old Afro-Caribbean male has a 4 year history of schizophrenia. Due to his previous non-compliance, he was initiated on zuclopenthixol decanoate 200mg depot injection once a month. Which of the following is a common side effect of this class of anti-psychotics?

A.Sudden collapse and death

B.Parkinsonian symptoms

C.Weight loss

D.Neuroleptic malignant syndrome

E.Hypoglycaemia

Answer:Parkinsonian symptoms

Explanation:

Parkinsonian symptoms are a common occurrence with anti-psychotics. Neuroleptic malignant syndrome is a rare but potentially life threatening side effect of anti-psychotics.

Question:

Your next patient is a 24-year-old man who complains of feeling depressed. He states that he is allergic to all selective serotonin reuptake inhibitors and asks for dothiepin and temazepam. He is thin and unkempt. You notice that he has rhinorrhoea, watering eyes and is constantly yawning. What is the most likely underlying problem?

A.Schizophrenia

B.Cocaine abuse

C.Heroin abuse

D.Alcohol withdrawal

E.Cannabis abuse

Answer:Heroin abuse

Explanation:

The majority of people who abuse drugs take more than one type. Dothiepin has sedative properties but is very dangerous in overdose.

Question:

Remi is a 58-year-old man who comes to see you worried about prostate cancer. You request a PSA which shows a level of 1 ng/ml (normal age-appropriate range is 3ng/ml) and then you perform a digital rectal examination which shows an irregular, hard and craggy prostate. What would be the most appropriate management?

A.Refer to urology as routine referral

B.Request an MRI scan of the prostate

C.Reassure Remi as he has a low PSA

D.Refer to urology as 2 week wait referral

E.Repeat PSA in 2 weeks

Answer:Refer to urology as 2 week wait referral

Explanation:

The correct answer is to refer the patient as a 2-week wait referral.

The NICE Guidelines for suspected cancer referrals state:

'If a hard, irregular prostate typical of a prostate carcinoma is felt on rectal examination, then the patient should be referred urgently. The PSA should be measured and the result should accompany the referral.'

It is vital to remember that the PSA test is not a sensitive test meaning that if a person has prostate cancer the test will not always be elevated. Approximately 1 in 50 men (two percent) with fast-growing prostate cancer have a normal PSA level.

References

NICE (2005) Referral guidelines for suspected cancer

https://www.nice.org.uk/guidance/cg27/chapter/guidance#urological-cancer

Prostate Cancer UK - The PSA Test

http://prostatecanceruk.org/prostate-information/getting-diagnosed/psa-test

Question:

You are reviewing a 24-year-old man who has recently been diagnosed with type 1 diabetes mellitus. He has no comorbidities and works as an accountant. What HbA1c target should he aim for initially?

A.42 mmol/mol

B.45 mmol/mol

C.48 mmol/mol

D.50 mmol/mol

E.52 mmol/mol

Answer:48 mmol/mol

Explanation:

In type 1 diabetics, a general HbA1c target of 48 mmol/mol (6.5%) should be used

Important for meLess important

Question:

A 56-year-old man is admitted to hospital following 6 months of symptoms including cough, weight loss, haemoptysis and fevers. Sputum samples and the presence of acid-fast bacilli on Ziehl-Neelsen staining reveal the diagnosis. On examination, the patient is noted to have tender skin lesions bilaterally covering both legs.

Which skin lesions does this patient most likely have?

A.Dermatitis herpetiformis

B.Erythema multiforme

C.Erythema nodosum

D.Pyoderma gangrenosum

E.Molluscum contagiosum

Answer:Erythema nodosum

Explanation:

TB is a cause of erythema nodosum

Important for meLess important

The diagnosis here is Tuberculosis, evidenced by the positive Ziehl-Neelsen staining result and the long period of symptoms. Tuberculosis can cause erythema nodosum and is not linked to any of the other skin conditions listed as options.

Dermatitis herpetiformis is a blistering skin condition linked to coeliac disease. The condition is caused IgA deposition in the dermis.

Erythema multiforme is a hypersensitivity reaction featuring target lesions that is most commonly triggered by infections, with herpes simplex infection being the most common cause.

Pyoderma gangrenosum appears initially as a small red papule that later transforms into a deep, red, necrotic ulcer with a violaceous border. It can be idiopathic but is also commonly linked to ulcerative colitis and Crohn’s disease.

Molluscum contagiosum is a common skin infection caused by molluscum contagiosum virus (MCV). The disease features characteristic pinkish or pearly white papules with a central umbilication, which are up to 5 mm in diameter. This infection is not linked to tuberculosis.

Question:

A 52-year-old man is reviewed in rheumatology clinic. He has rheumatoid arthritis and has tried a number of medications over the years, with very little success in reducing his symptoms. The rheumatologist decides to trial him on hydroxychloroquine.

Which of the following adverse effects should the patient be warned about?

A.Cataracts

B.Open-angle glaucoma

C.Retinopathy

D.Scleritis

E.Uveitis

Answer:Retinopathy

Explanation:

Hydroxychloroquine - may result in a severe and permanent retinopathy

Important for meLess important

The correct answer is hydroxychloroquine - a recognised side effect of this drug is 'bull's eye retinopathy', which may result in severe and permanent visual loss. Recent publications suggest that this is more common than previously thought, and the most recent guidelines from the Royal College of Ophthalmologists proposes regular monitoring. Hydroxychloroquine more commonly causes keratopathy, but this is considered fairly benign. The other ocular effects listed as options here are not recognised as side effects of hydroxychloroquine.

Cataracts are a recognised, relatively-common side effect of long-term steroid use, as is open-angle glaucoma.

Scleritis and uveitis have been linked in case reports with bisphosphonates, although there is not much data beyond this. They are, however, linked to a number of rheumatological and inflammatory conditions.

Question:

A 67-year-old with chronic kidney disease stage 4 and metastatic prostate cancer presents as his pain is not controlled with co-codamol. Which one of the following opioids is it most appropriate to use given his impaired renal function?

A.Buprenorphine

B.Morphine

C.Hydromorphone

D.Diamorphine

E.Tramadol

Answer:Buprenorphine

Explanation:

Alfentanil, buprenorphine and fentanyl are the preferred opioids in patients with chronic kidney disease.

Question:

A 25-year-old woman presents with recurrent attacks of 'dizziness'. These attacks typically last around 30-60 minutes and occur every few days or so. During an attack 'the room seems to be spinning' and the patient often feels sick. These episodes are often accompanied by a 'roaring' sensation in the left ear. Otoscopy is normal but Weber's test localises to the right ear. What is the most likely diagnosis?

A.Acoustic neuroma

B.Vestibular neuritis

C.Benign paroxysmal positional vertigo

D.Multiple sclerosis

E.Meniere's disease

Answer:Meniere's disease

Explanation:

In sensorineural hearing loss Weber's test localises to the contralateral ear.

Question:

A 29-year-old pregnant woman attends her antenatal appointment requesting a screening test. She is currently 16 weeks pregnant and would like to be given the most accurate screening test to determine any chromosomal abnormalities. She is particularly concerned about Edward's syndrome as she has a family history of this.

Given the screening test that would be offered, what result would indicate a high chance of Edward's syndrome?

A.↑ hCG, ↓ PAPP-A, thickened nuchal translucency

B.↑ AFP ↔ oestriol ↔ hCG ↔ inhibin A

C.↓ AFP ↓ oestriol ↑ hCG ↑ inhibin A

D.↓ AFP ↓ oestriol ↓ hCG ↔ inhibin A

E.↓ hCG, ↓ PAPP-A, thickened nuchal translucency

Answer:↓ AFP ↓ oestriol ↓ hCG ↔ inhibin A

Explanation:

Edward's syndrome: quadruple test result

↓ AFP

↓ oestriol

↓ hCG

↔ inhibin A

Important for meLess important

Edward's syndrome, also known as trisomy 18, occurs when there is an extra chromosome 18. Babies affected with Edward's syndrome typically present with overlapping fingers, small jaw, rocker bottom feet, and low-set ears. It can be screened for antenatally to determine if there is a 'high chance' of your baby being affected by Edward's syndrome. Women are offered the combined test between 11-13+6 weeks (nuchal translucency, HCG and pregnancy-associated plasma protein) and the quadruple test (AFP, inhibin- A, bHCG, and unconjugated oestriol) at 15-20 weeks. Diagnostic tests are offered to high-risk women following this to determine definitively if their baby is affected or not.

↓ AFP ↓ oestriol ↓ hCG ↔ inhibin A is the correct answer. This woman is currently 16 weeks gestation and hence should be offered the quadruple screening test including an alpha feta protein, unconjugated oestriol, hCG and inhibin A measurement. A 'high chance' result where there is a risk of the baby being affected with Edward's syndrome would warrant further screening or definitive results. A 'high chance' result in the quadruple screening test would be ↓ AFP ↓ oestriol ↓ hCG ↔ inhibin A.

↑ hCG, ↓ PAPP-A, thickened nuchal translucency is incorrect. This is the combined test result indicating a higher chance of Down's syndrome. As mentioned previously this woman should not be given the combined test as she is out of the appropriate gestation bracket. Down's syndrome would also give a higher HCG result compared to other chromosomal abnormalities.

↑AFP ↔ oestriol ↔ hCG ↔ inhibin A is incorrect. This indicates a high chance of neural tube defects. This is incorrect as these results do not indicate a higher chance of Edward's syndrome. An idea of neural tube defects would also be indicated on the 12 weeks ultrasound scan, which can later be detailed on the anomaly scan taken between 18-20+6 weeks.

↓ AFP ↓ oestriol ↑ hCG ↑ inhibin A is incorrect. This indicates a higher chance of Down's syndrome as opposed to Edward's syndrome. Usually, Down's syndrome would give higher HCG and inhibin A results.

↓ hCG, ↓ PAPP-A, thickened nuchal translucency is incorrect. This is the result of a combined screening test for Edward's syndrome, that should be offered for women between 11-13+6 weeks gestation. This woman is currently 16 weeks gestation and thus falls out of this bracket. A combined test would deem inaccurate results at her gestation hence the quadruple test should be offered.

Question:

A 31-year-old woman with a history of Crohn's disease presents having noticed some yellow discharge from around the anus.

On examination, there is erythema and swelling of the skin around the anus. There is a palpable lump next to the anus which is exquisitely tender to palpate and warm to the touch.

What is the most appropriate management?

A.IV antibiotics

B.Incision and drainage

C.Oral antibiotics

D.Rectal mesalazine

E.Seton insertion

Answer:Incision and drainage

Explanation:

Patients with Crohn's who develop a perianal abscess require incision and drainage

Important for meLess important

Incision and drainage is correct. The examination describes a perianal abscess, which requires incision and drainage.

IV antibiotics or oral antibiotics alone are incorrect. This patient may receive antibiotics alongside the incision and drainage, but incision and drainage is the required treatment. This is because perianal abscesses very rarely respond to antibiotics alone, and almost always require drainage.

Rectal mesalazine is incorrect. This is used in ulcerative colitis, both to induce and maintain remission, in left-sided disease. They have no role in perianal Crohn's disease.

Seton insertion is incorrect. Setons are used in complex fistulae.

Question:

An 18-year-old girl is brought into the emergency department because of a history of cough, and breathing difficulty. She had experienced multiple episodes of vomiting in the last few hours and is also complaining of ringing in her ears. Her mum said she was found with a few empty packets of aspirin in her hand. Some of her blood tests can be found below.

Na+ 148mmol/L (135 - 145)

K+ 6.0mmol/L (3.5 - 5.0)

Urea 14.1mmol/L (2.0 - 7.0)

Creatinine 241µmol/L (55 - 120)

eGFR 39ml/min/1.73m2 (>89ml/min/1.73m2)

Salicylate levels 646mg/l (<300mg/l)

From the history above, what would you most likely expect to find on her arterial blood gas sample?

A.Metabolic acidosis only

B.Metabolic alkalosis only

C.Mixed respiratory acidosis and metabolic alkalosis

D.Mixed respiratory alkalosis and metabolic acidosis

E.Respiratory acidosis only

Answer:Mixed respiratory alkalosis and metabolic acidosis

Explanation:

Salicylate overdose can cause a mixed primary respiratory alkalosis and metabolic acidosis

Important for meLess important

Salicylate overdose usually causes mixed respiratory alkalosis and metabolic acidosis. Direct stimulation of the cerebral medulla causes hyperventilation and respiratory alkalosis. As aspirin is metabolized, it inhibits ATP synthesis by uncoupling oxidative phosphorylation in the mitochondria. Lactate levels then increase due to the increase in anaerobic metabolism. The lactic acid along with a slight contribution from the salicylate metabolites result in metabolic acidosis.

DKA, severe diarrhoea and renal failure often cause metabolic acidosis.

Vomiting, nasogastric suctioning, hypokalemia, and antacid use often cause metabolic alkalosis.

COPD, obesity, pneumonia, respiratory muscle weakness can often cause respiratory acidosis.

Hyperventilation, anaemia, or respiratory centre stimulation from drugs can cause respiratory alkalosis. This is the case here but also causes metabolic acidosis.

Question:

A couple is referred to see their doctor in a family planning clinic as they are looking to have a second child. Their first child died from Tay Sachs disease. After genetic testing, both parents are found to be heterozygous for the condition.

What is the chance their next child will be a carrier of this condition?

A.0%

B.25%

C.50%

D.50% if female 0% if male

E.100%

Answer:50%

Explanation:

For autosomal recessive conditions, if both parents are carriers (heterozygote) there is a 50% chance of having a carrier (heterozygote) child

Important for meLess important

Tay Sachs disease(TSD) is an autosomal recessive condition requiring both parents to pass on the gene for the child to be affected, but only 1 parent needs to pass it in for the patient to be a carrier. The parents' genetics can be characterised as Cc and Cc with capital C meaning Tay Sachs trait and small c unaffected.

The correct answer is 50%. There are 4 possible outcomes of the child genotype. CC, Cc, cC, cc. C means TSD gene and c means not TSD gene. CC is where both parents pass on the TSD gene, meaning the child would have Tay Sachs. This has a 25% chance of happening. Cc is where the mother passes on the TSD gene, but the father doesn't. cC is where the father passes on the TSD gene, but the mother doesn't. Both options lead to the patient being heterozygous and a carrier, and as both have a 25% chance of happening, 25%+25% = 50%. The final possibility is cc which has a 25% chance of happening, and the child would be unaffected and not a carrier.

0% is incorrect. TSD is a genetic condition, and as both parents carry it, there is a chance it will be passed on. 0% chances rarely come up in genetics questions unless relating to X-linked conditions like haemophilia or mitochondrial disease like mitochondrial myopathy. Neither of which are related to Tay Sachs.

50% if female 0% if male is incorrect. Unlike haemophilia, TSD is not an x-linked condition. In X-linked recessive conditions, men are either affected or not, and women have a 50% chance of being a carrier if their mother carries the condition.

25% is incorrect. In this case, there is a 25% chance the patient will have TSD and a 25% chance they will be homozygous without TSD, but a 50% chance they will be a heterozygous carrier.

100% is incorrect. If TSD were a mitochondrial disease, there would be a 100% chance the child of an affected mother would have the disease, but TSD is not a type of mitochondrial disease.

Question:

A 78-year-old man presents with a three-week history of increasing fatigue and palpitations on exertion. His medical history includes myocardial infarction and biventricular heart failure for which he takes ramipril 5mg, bisoprolol 5mg, aspirin 75mg, and atorvastatin 80mg.

On examination, his heart rate is 98/min irregularly irregular, blood pressure 172/85mmHg. An ECG confirms the diagnosis of new atrial fibrillation.

Which medication should be avoided in this man?

A.Amlodipine

B.Apixaban

C.Indapamide

D.Digoxin

E.Verapamil

Answer:Verapamil

Explanation:

Dihydropyridines (e.g. amlodipine) are less likely to exacerbate heart failure than verapamil

Important for meLess important

Verapamil should be avoided in heart failure. As a myocardial predominant calcium channel blocker, it can further depress cardiac function and exacerbate symptoms.

Amlodipine is also a calcium channel blocker, but it is more selective to vascular calcium channels. It can therefore be used to cause vascular smooth muscle relaxation and reduce blood pressure. It would be suitable to treat blood pressure and is not contraindicated.

Digoxin can be used in atrial fibrillation and there are no contra-indications mentioned in this scenario. It works by increasing myocardial contraction and reducing conduction at the AV node so it can be useful if patients have atrial fibrillation and reduced blood pressure.

A thiazide diuretic such as indapamide would be the third line agent to control blood pressure, there are no direct contraindications in this scenario.

Apixaban would be appropriate as prophylaxis of stroke in non-valvular atrial fibrillation in a patient > 75 with a history of hypertension and heart failure. Dose adjustment may be needed depending on body mass index and renal function.

Question:

A 34-year-old woman who is 38 weeks pregnant overdoses on lithium. Once she is stabilised, the baby is safely delivered. During routine neonatal checks, a pan-systolic murmur is heard. Cardiac echocardiogram reveals a low insertion of the tricuspid valve with a large right atrium, a small right ventricle and associated tricuspid incompetence. What is the most likely diagnosis?

A.Fallot's tetralogy

B.Coarctation of the aorta

C.Transposition of the great arteries

D.Ebstein's anomaly

E.Patent ductus arteriosus

Answer:Ebstein's anomaly

Explanation:

Ebstein's anomaly - 'atrialisation' of the right ventricle

Important for meLess important

1 - Incorrect. Fallot's tetralogy is a cyanotic congenital heart disease and presents with ventricular septal defect, right ventricular hypertrophy, overriding aorta, and pulmonary stenosis.

2 - Incorrect. This is a congenital narrowing of the aorta and would present with absent/weak femoral pulses; hypertension in arms but hypotension in legs.

3 - Incorrect. Transposition of the great arteries is where the aorta arises from the right ventricle and the pulmonary artery arises from the left ventricle. It presents mainly as cyanosis in children.

4 - Correct. Ebstein's anomaly results in low insertion of the tricuspid valve resulting in a large right atrium and small right ventricle causing tricuspid incompetence.

5 - Incorrect. Patent ductus arteriosus is where there is a failure of the ductus arteriosus to close after birth causing a left-right shunting and would present as a loud continuous murmur with bounding pulses and a wide pulse pressure.

Question:

A 26-year-old female, with no past medical history, has been admitted to the emergency department. She temporarily lost consciousness on the bus, whilst heading for a job interview. She has no recollection of the event, although she states feeling lightheaded this morning. Witnesses on the bus informed paramedics that they had seen her shake her limbs for a few seconds. They also state that she lost consciousness for around 20 seconds. The patient did not bite her tongue or experience incontinence during the event. When she came around, she was pale, and it took her a few minutes before she felt orientated again. This was the first time this has happened.

Based on this brief history, which of the following is the patient most likely to have experienced?

A.Generalised tonic-clonic seizure

B.Absence seizure

C.Vasovagal syncope

D.Psychogenic non-epileptic seizure

E.Cardiac arrhythmia

Answer:Vasovagal syncope

Explanation:

Syncopal episodes are associated with a rapid recovery and short post-ictal period. Seizures are associated with a far greater post-ictal period

Important for meLess important

This is a challenging, but highly useful question, and it is one that requires the knowledge of how to differentiate seizures from other causes of loss of consciousness. Here, vasovagal syncope is most fitting with the history. Syncopal episodes tend to be associated with a short post-ictal period in comparison to a tonic-clonic seizure. In this case, the patient also had an important job interview that day which is likely to have precipitated the vasovagal episode. Importantly, syncopal episodes can indeed also be associated with the twitching or jerking of limbs, this is, however, less violent as is seen in a generalised tonic-clonic seizure.

Additionally, it is very rare for a syncopal event to be associated with incontinence or tongue biting during the event.

Psychogenic non-epileptic seizures are seen in patients where a cause cannot be identified, as unlike epileptic seizures, they do not have characteristic electrical discharges. Indicators here include a history of mental health problems and long-lasting episodes of altered consciousness which tend to be memorable for the patients.

Cardiac arrhythmias can of cause also lead to syncope. Here though, the patient reports no cardiac symptoms prior to the attack, making this far less likely.

Question:

A 32-year-old female presents to her general practitioner with worsening blistering of the fingers and palms of both hands. She has a past history of blistering and fissuring of her hands and recently returned from a holiday in a foreign country with a hot, humid environment. Examination identifies numerous areas of irritable, erythematous vesicles on the palms of both hands.

What is the most likely diagnosis?

A.Discoid eczema

B.Irritant contact dermatitis

C.Lichen planus

D.Pompholyx eczema

E.Stasis dermatitis

Answer:Pompholyx eczema

Explanation:

Pompholyx eczema may be precipitated by humidity (e.g. sweating) and high temperatures

Important for meLess important

The correct answer is pompholyx eczema (also known as vesicular palmar eczema). This condition is characterised by acute eruptions of deep-seated vesicles in the palms and fingers, which are followed by scaling and fissuring of the affected areas. Sweating is a common precipitant of blistering and the condition is therefore associated with hot, humid environments.

Discoid eczema is incorrect. This condition usually affects the limbs, particularly the legs and is characterised by scattered, coin-sized plaques of eczema.

Irritant contact dermatitis is incorrect, this condition is characterised by a non-allergic reaction to weak acids or alkalis, neither of which the patient has been in contact with. It is often seen in patients with ileostomies.

Lichen planus is incorrect, this is characterised by a purple papular rash most commonly affecting the palms, soles and genitalia. The rash often has white lines on its surface and may be associated with oral lesions.

Stasis dermatitis (or varicose eczema) is incorrect. This condition typically produces erythematous, crusted plaques and dry fissures often affecting one or both lower legs and is associated with chronic venous insufficiency.

Question:

A 32-year-old woman who is currently 28 weeks pregnant attends her GP practice with 'bad skin'. When she enters the room you notice several open and closed comedones on her face, and upon further examination, there are further pustular lesions on her back and chest. She had attended 4 weeks earlier with the same complaint and had been started on topical benzoyl peroxide by one of your colleagues.

The patient has a history of acne vulgaris in her teens, treated with isotretinoin.

Which is the most appropriate treatment to add?

A.Co-cyprindiol orally

B.Oral isotretinoin

C.Oral erythromycin

D.Oral oxytetracycline

E.Topical isotretinoin

Answer:Oral erythromycin

Explanation:

Oral tetracyclines should be avoided in pregnant or breastfeeding women and in children younger than 12 years of age

Important for meLess important

Oral tetracyclines are the first-line oral antibiotic treatment in the management of acne vulgaris but are contraindicated in pregnancy and children. Erythromycin is a safer alternative.

Co-cyprindiol (Dianette) is a combined oral contraceptive pill and is, therefore, contraindicated in pregnancy.

Oral isotretinoin is contraindicated in pregnancy as the BNF lists it as teratogenic.

Tetracyclines are usually first-line antibiotics in the management of acne vulgaris, but these are contraindicated in pregnancy.

Topical isotretinoin is also contraindicated.

Question:

A 50-year-old woman presented with a painful breast lump, axillary lymphadenopathy and weight loss. She is urgently referred for investigation and a diagnosis of metastatic breast cancer is made.

She has angina and had a thyroidectomy for thyroid cancer. She takes trastuzumab, bisoprolol, levothyroxine and recently had a course of doxycycline.

She attends for a repeat echocardiogram which shows a left ventricular ejection fraction (LVEF) of 45%. 6 months ago, her LVEF was 65%.

What is the most likely cause of this deterioration?

A.Bisoprolol

B.Doxycycline

C.Levothyroxine

D.Metastatic disease

E.Trastuzumab

Answer:Trastuzumab

Explanation:

Trastuzumab (Herceptin) - cardiac toxicity is common

Important for meLess important

This patients cardiac function, as indicated by the left ventricular ejection fraction (LVEF), has deteriorated quite significantly over a short space of time. This raises the concern that there might be a precipitant.

Trastuzumab is correct. Cardiotoxicity with trastuzumab is a common side effect, and it is good practice to do an echocardiogram before starting treatment.

Doxorubicin, not doxycycline, can also cause cardiomyopathy. Doxycycline is not known to cause significant cardiac impairment. Doxorubicin is another type of chemotherapeutic agent that may be used in the treatment of leukaemia, lymphoma, and some types of breast cancer.

Bisoprolol is not correct. Beta-blockers, like bisoprolol, slow down the heart and lower blood pressure. They are beneficial in the management of heart failure, rather than precipitate heart failure.

Levothyroxine is not correct. Levothyroxine, or hyperthyroidism, can cause palpitations and tachycardia but is unlikely to cause a deterioration in cardiac function, especially over a short space of time.

Metastatic disease is unlikely in this patient. While this patient has metastases from her cancer, breast cancer is unlikely to metastasise to the heart and would therefore be unlikely to cause such a rapid decline in cardiac function.

Question:

Which of the following regarding hCG is true?

A.It is detectable in maternal bloodstream at 3 days after fertilisation

B.It is maintained by progesterone

C.It is maintained by the corpus luteum

D.It is secreted by syncytiotrophoblasts

E.It is secreted by the corpus luteum

Answer:It is secreted by syncytiotrophoblasts

Explanation:

Human chorionic gonadotrophin (HCG) is secreted by the syncytiotrophoblast into the maternal bloodstream, where is acts to maintain the production of progesterone by the corpus luteum in early pregnancy

HCG can be detected in the maternal blood as early as day 8 after conception

Question:

A 67-year-old woman presents to the emergency department with multiple episodes of melaena and generalised abdominal pain. She started observing blood in her faeces yesterday but she denies any other associated features. She has a past medical history of peptic ulcer disease and diverticulitis.

Her heart rate is 87/min, respiratory rate 14/min, blood pressure 90/78 mmHg and temperature 36.8 ºC.

Given her past medical history, the doctors are undecided on whether the blood originates from the upper gastrointestinal tract or the lower gastrointestinal tract.

Which one of the following findings would help the differentiation?

A.Distended abdomen

B.Epigastric pain

C.Haematochezia

D.Urea level of 14 mmol/L

E.CRP level of 125 mg/L

Answer:Urea level of 14 mmol/L

Explanation:

High urea levels can indicate an upper GI bleed versus lower GI bleed

Important for meLess important

The correct answer is a urea level of 14 mmol/L. High urea levels can indicate an upper gastrointestinal (GI) bleed versus a lower GI bleed. This is due to the fact that when upper GI bleeding occurs, the blood is digested into proteins. These proteins are transported to the liver via the portal vein and metabolized to urea in the urea cycle. This is likely a presentation of a perforated peptic ulcer. Upper GI bleedings can result in melaena as the blood gets digested through the lower GI tract.

A distended abdomen is not a classical feature of both upper and lower GI bleedings. It is usually associated with both large and small bowel obstructions. It is due to the accumulation of digestive materials and gases in the GI tract.

From the point of view of GI bleeding the demarcation between the upper and lower GI tract is the duodenojejunal (DJ) junction (ligament of Treitz); bleeding above the DJ junction is called upper GI bleeding, and that below the DJ junction is called lower GI bleeding. Epigastric pain can be caused by any structure belonging to the midgut. Given that the midgut comprehends the duodenum (distal half of 2nd part, 3rd and 4th parts), jejunum, ileum, cecum, appendix, ascending colon, hepatic flexure of the colon and transverse colon (proximal two-thirds) this could be a feature of both upper and lower GI bleedings.

Haematochezia is described as the passage of fresh blood per anus, usually in or with stools. It is usually a feature of lower GI bleeding as the blood is undigested. However, it can occur with massive upper GI bleeding, hence it is not a defining feature.

CRP is an acute-phase protein and it is unspecific. Hence, it increases every time there is an inflammatory process in the body, such as bleeding. Given the lack of specificity, it cannot be used to differentiate between the two.

Question:

A 71-year-old man presents to the emergency department with dizziness, shortness of breath and palpitations. He has a past medical history of COPD and he has recently developed pneumonia, which is being treated with antibiotics.

On examination, his heart rate is 170/min, respiratory rate is 22/min, blood pressure 140/92 mmHg and temperature 36.3 ºC.

An electrocardiogram shows a polymorphic ventricular tachycardia with oscillatory changes in amplitude of the QRS complexes around the isoelectric line.

What is the most likely drug to have precipitated his symptoms?

A.Amoxicillin

B.Azithromycin

C.Doxycycline

D.Flucloxacillin

E.Metronidazole

Answer:Azithromycin

Explanation:

Macrolides can cause torsades de pointes

Important for meLess important

The correct answer is azithromycin. This patient is presenting with the classical features of torsades de pointes: dizziness, shortness of breath, palpitations and polymorphic ventricular tachycardia with oscillatory changes. This type of arrhythmia has been associated with a long QT interval, which can be caused by macrolides antibiotics such as azithromycin. The arrhythmia can be fatal, hence it should be promptly treated with intravenous magnesium to stabilise the cardiac myocytes.

Amoxicillin is a penicillin antibiotic used as a first-line to treat pneumonia. It can cause diarrhoea, nausea, skin reactions, thrombocytopenia and vomiting, but it has not been associated with long QT intervals and torsades de pointes.

Doxycycline is a tetracycline antibiotic which can be used to treat pneumonia. It can cause angioedema, diarrhoea, headache, nausea, photosensitivity reaction, vomiting but it has not been associated with long QT intervals and torsades de pointes.

Flucloxacillin is a penicillin antibiotic that can be used to treat pneumonia with superimposing viral infections such as influenza. As amoxicillin, it can cause diarrhoea, nausea, skin reactions, thrombocytopenia and vomiting, but it has not been associated with long QT intervals and torsades de pointes.

Metronidazole is an antibiotic used to treat multiple infections such as gingivitis, facial cellulitis and human or animal bites. Depending on the route of administration, it can cause different side effects. With intravenous use, it can cause dry mouth, myalgia, nausea and vomiting, metallic taste. With topical use, it can cause skin reactions. It has not been associated with long QT intervals and torsades de pointes.

Question:

A 33-year-old lady has developed a massive obstetric haemorrhage. A diagnosis of uterine atony is made. After initial stabilisation and general measures, what is the first-line medical management?

A.Syntocinon

B.Terbutaline

C.Misoprostol

D.Carboprost

E.Ergometrine

Answer:Syntocinon

Explanation:

Medical treatments for postpartum haemorrhage secondary to uterine atony include oxytocin, ergometrine, carboprost and misoprostol

Important for meLess important

Uterine atony is the most common cause of primary postpartum haemorrhage (PPH)

The RCOG has provided guidance of management of primary PPH due to uterine atony (Green-top Guideline No.52). This states that first-line management should be 5U of IV Syntocinon (oxytocin), followed by 0.5 mg of ergometrine.

Question:

A 27-year-old visits her GP with irregular vaginal bleeding, reporting 4-weeks of intermittent light 'spotting'. She denies pelvic pain, vaginal discharge, dyspareunia or post-coital bleeding. A pregnancy test is negative and a pelvic and speculum examination is normal.

The patient had a smear test 2-years ago which was HPV negative and is sexually active with one partner. They have both been screened for sexually transmitted infections. She started taking desogestrel for contraception one and a half months ago.

What is the most appropriate action?

A.Advise the patient switches to a combined oral contraceptive pill

B.Advise the patient switches to the levonorgestrel intrauterine system

C.Reassure and re-assess in 2 months

D.Refer for transvaginal ultrasound

E.Repeat cervical smear

Answer:Reassure and re-assess in 2 months

Explanation:

Progestogen-only pill: irregular vaginal bleeding is the most common adverse effect

Important for meLess important

Reassure and re-assess in 2 months is the correct answer. This is because irregular vaginal bleeding is the most common side effect of progestogen-only pills (POPs), which is the class that desogestrel belongs to. NICE advises that further investigation is not needed if this bleeding is present in the first 3-months, so long as a pregnancy and sexually transmitted infections are excluded, there is an up-to-date smear and there are no symptoms suggesting another underlying disease. This patient meets all these criteria and has normal examination findings, so can continue her contraception with reassurance if she desires.

Advise the patient switches to a combined oral contraceptive pill is incorrect. As above, initial bleeding is common with the progestogen-only pill and does not necessarily mean a different contraceptive is required.

Advise the patient switches to the levonorgestrel intrauterine system (IUS) is incorrect. There is no clinical need to change contraception so long as the patient is tolerating the bleeding. Irregular bleeding is common with the POP and is likely to settle with time. Furthermore, unscheduled bleeding is also common in the first 3-6 months of IUS usage.

Transvaginal ultrasound is incorrect. It is not required at this stage, as the patient has no other symptoms and a normal examination. If the bleeding continued beyond 3 months, differentials such as endometrial cancer would be considered, and hence an ultrasound may be warranted.

Repeat cervical smear is incorrect. This patient has an up-to-date smear which is negative for HPV. Cervical smears are screening tests and are not appropriate for suspected cervical cancer. If the patient did have a history concerning for cervical cancer, she would warrant a gynaecology referral. However, this patient has had a normal speculum examination.

Question:

A dishevelled-looking 26-year-old man is brought off the streets to the emergency department. The man appears confused and agitated. Although he is speaking very unclearly he manages to disclose he has a terrible headache.

On examination, his skin is pale and he is sweaty. A mild tremor and poor coordination are noted on neurological examination. His heart rate is 119 bpm, his oxygen saturations are 98%, his respiratory rate is 21 /min, his blood pressure is 128/75 mmHg, his temperature is 36.7ºC, and his blood glucose is 2.6 mmol/L.

What is the most appropriate next step in his management?

A.Administer 1 mg of IM glucagon

B.Administer 10% glucose IV at 200ml in 15 min

C.Confirm blood sugar by repeating capillary blood test

D.Encourage the patient to eat a couple of biscuits

E.Encourage the patient to swallow some glucose gel

Answer:Encourage the patient to swallow some glucose gel

Explanation:

Hypoglycaemia treatment - if the patient is conscious and able to swallow the first-line treatment is a fast-acting carbohydrate by mouth i.e.. glucose liquids, tablets or gels

Important for meLess important

Encourage the patient to swallow some glucose gel is correct. This patient has neurological cognitive signs and symptoms explained by his hypoglycaemia. Although he is confused, he is still conscious and there is nothing to suggest that he has an unsafe swallow, therefore he should be given oral glucose gel to treat his hypoglycaemia. This avoids unnecessarily inserting a cannula or using an IM injection which has carry risks of bleeding and infection.

Administer 1 mg of IM glucagon is incorrect. This would be appropriate if the patient was unconscious or had an unsafe swallow and no IV access had been obtained.

Administer 10% glucose IV at 200ml in 15 min is incorrect. This would be appropriate if the patient was unconscious or had an unsafe swallow and had IV access established.

Confirm blood sugar by repeating capillary blood test is incorrect. Given that this patient's symptoms can be explained by his hypoglycaemia, there is no need to repeat testing and he should be given treatment.

Encourage the patient to eat a couple of biscuits is incorrect. Although he should be encouraged to eat oral carbohydrates, biscuits are relatively long-acting. Fast-acting carbohydrates such as oral glucose liquids, gels, or tablets should be given first to quickly return the patient to normoglycaemia.

Question:

During a telephone consultation a 35-year-old female is very concerned that she may have developed Ebola as she has developed a fever 2-months following a trip to Sierra Leone. During this trip she came in contact with a family she has now discovered is suffering from Ebola. Other than a fever which has developed overnight she currently has no other symptoms.

What information regarding the incubation period of Ebola could you tell this patient about?

A.The incubation period is 2-21 days

B.The incubation period lasts up until one year after exposure

C.If she came into direct contact with someone with Ebola 2 months ago she is still at high risk of developing Ebola

D.The incubation period can last up till 16 weeks

E.Patients are infectious up to one month prior to developing symptoms

Answer:The incubation period is 2-21 days

Explanation:

The incubation period of Ebola virus is 2-21 days

Important for meLess important

With Ebola outbreaks in 2016 and 2018, this is becoming an ever more relevant topic to general practice. It is vital to enquire about recent travel history in patients presenting with a new-onset pyrexia.

The incubation period of Ebola is 2-21 days therefore this patient is highly unlikely to have developed Ebola at this late stage, however all patients returning from Africa with an unexplained fever should be referred to secondary care to rule out other differentials, including malaria.

Options two, three and four are incorrect as the incubation period is only 2-21 days.

With respect to option five, patients are not infectious until they develop symptoms.

Question:

You receive in your inbox the results of a human immunodeficiency virus (HIV) test. The antibodies and p24 antigen are reported as negative. You check the records and find it was requested by your colleague who is on holiday. The patient is a man who had requested an HIV test after an encounter with a sex worker; your colleague had asked him to attend the sexual health clinic but he had declined, wanting tests done via the GP. The HIV test had been taken 4 weeks after the episode.

What should the patient be told about the result?

A.Incorrect test requested

B.HIV infection excluded

C.HIV infection unlikely but test needs to be repeated at 12 weeks post-exposure

D.HIV infection unlikely but test needs to be repeated at 6 months post-exposure

E.HIV infection unlikely but test needs to be repeated at 12 months post-exposure

Answer:HIV infection unlikely but test needs to be repeated at 12 weeks post-exposure

Explanation:

After an initial negative result when testing for HIV in an asymptomatic patient, offer a repeat test at 12 weeks

Important for meLess important

Incorrect test requested. Incorrect answer, the combined HIV test for HIV-1 and HIV-2 antibodies and p24 antigen is the preferred test for HIV.

HIV infection excluded. Incorrect, although most cases of HIV infection can be detected by 4 weeks, a repeat test at 12 weeks is recommended to confidently exclude the diagnosis.

HIV infection unlikely but the test needs to be repeated at 12 weeks post-exposure. Correct, although most cases of HIV infection can be detected by 4 weeks, a repeat test at 12 weeks is recommended to confidently exclude the diagnosis. Therefore the other options are incorrect.

Question:

You review a 17-year-old man with a history of anxiety and depression. He is under the care of the Child and Adolescent Mental Health Service who have recommended the prescription of a SSRI. What is the most appropriate drug to prescribe?

A.Citalopram

B.Fluoxetine

C.Paroxetine

D.Sertraline

E.Escitalopram

Answer:Fluoxetine

Explanation:

Fluoxetine is the SSRI of choice in children and adolescents

Important for meLess important

Question:

A 14-year-old girl is taken to the Emergency Department, after being found lying on her bed next to an empty bottle of pills prescribed for her mother. On examination she is agitated, has a clenched jaw and her eyes are deviated upwards. Which drug is she most likely to have consumed?

A.Phenytoin

B.Metoclopramide

C.Amitriptyline

D.Carbamazepine

E.Nifedipine

Answer:Metoclopramide

Explanation:

This is a classic description of an oculogyric crisis, a form of extrapyramidal disorder

Question:

A 76-year-old woman complains of blurred vision. She has not been to the doctors for many years and describes her self as being otherwise fit and well. Fundoscopy reveals the following:

Similar changes are seen in both eyes. What is the most likely diagnosis?

A.Primary open angle glaucoma

B.Retinal tear

C.Diabetic retinopathy with laser scars

D.Optic neuritis

E.Age-related macular degeneration

Answer:Age-related macular degeneration

Explanation:

Question:

An 18-year-old man presents to the emergency department with 1-hour history of sudden-onset right-sided groin pain over the last hour. He describes it as 10/10 and has associated nausea and vomiting.

On examination, the right testis is retracted and elevation of the testis does not ease the pain. The left testis is unaffected. He is subsequently admitted. There are no anticipated delays in treatment.

What is the most appropriate step in his management?

A.Emergency bilateral orchidopexy

B.Emergency bilateral orchiectomy

C.Emergency manual de-torsion

D.Emergency right orchidopexy

E.Emergency right orchiectomy

Answer:Emergency bilateral orchidopexy

Explanation:

Testicular torsion surgery should involve fixation of both testes to prevent torsion of the other testes

Important for meLess important

The presence of acute-onset unilateral groin pain in a young male adult should suggest a diagnosis of testicular torsion. The presence of a negative Prehn's sign (elevating the testis does not alleviate pain) and retraction and elevation of the testis support this diagnosis.

Emergency bilateral orchidopexy is correct as this involves surgical fixation of both testes to the posterior wall. Both testes are fixed to prevent future testicular torsion in the other testis, as one episode of testicular torsion is a risk factor for its occurrence in the other testis. Around 90% of cases of testicular torsion are due to the bell clapper deformity (an anatomical anomaly allowing for the testicles to rotate freely) and most patients with the bell clapper deformity have it bilaterally, hence why both testes are fixed.

Emergency right orchidopexy is incorrect. Although this is the appropriate procedure for this patient, as mentioned above, both testes should be fixed, rather than one. This is because around 90% of cases are caused by a bell-clapper deformity and most of the patients with this deformity have it bilaterally. Bilateral fixation, therefore, reduces the risk of torsion in the other testis.

Emergency bilateral orchiectomy is incorrect as this describes the removal of the testes. Removal of the testes is not as likely in this patient as their symptoms have been ongoing for an hour, and no delays in treatment are anticipated. This patient's right testis is also only affected, therefore even if removal were indicated, the left testis should not be removed. Generally speaking, the timeframe in which the testes are salvageable is around 6 hours before infarction occurs.

Emergency manual de-torsion is incorrect. This involves rotating the testicle counter-clockwise and may be considered to buy more time if surgery is not available within 6 hours or while preparations for surgery are being made. This patient's symptoms have been ongoing for 1 hour and there are no anticipated delays in treatment, therefore this option is not necessary.

Emergency right orchiectomy is incorrect. This describes the removal of the testis would be considered if the patient's symptoms have been ongoing for 6 or more hours, as after this time, the testicular tissue is infarcted and starts to necrose. Since this patient's symptoms have been ongoing for an hour, the testicular tissue is still likely to be salvageable, therefore fixation (orchidopexy) is more appropriate.

Question:

A 50-year-old man presents to the GP with general aches in his joints. After further enquiry, you note he has been a bit run down recently and feeling quite fatigued. After some time he also notes that he is having a problem achieving an erection and this has all been ongoing for the last year. He has no other medical conditions however both his father and grandfather died of a liver condition.

Given this man's presentation, what is the most likely diagnosis?

A.Addison's disease

B.Wilson's disease

C.Haemochromatosis

D.Systemic lupus erythematosus

E.Budd–Chiari syndrome

Answer:Haemochromatosis

Explanation:

Early signs of haemochromatosis are fatigue, erectile dysfunction and arthralgia

Important for meLess important

This question is asking about a 50-year-old man presenting with fatigue, erectile dysfunction and arthralgia. These are all the earliest signs of haemochromatosis. This along with the family history points towards haemochromatosis as the underlying diagnosis.

Addison's disease would present acutely with abdominal pain, weight loss, nausea and vomiting. This does not fit with this man's presentation.

Wilson's disease normally presents in children and adolescents as neuropsychiatric symptoms as well as the symptoms of liver failure. As said above the fact it typically presents in much younger patients helps to rule this out.

Systemic lupus erythematosus can present with a variety of symptoms such as fatigue, arthralgia and weight loss. While these symptoms could account for his arthralgia and fatigue, erectile dysfunction is not typical. Even if it was, the fact that both his dad and grandfather died of liver conditions points towards another diagnosis.

Budd-Chiari syndrome is due to obstruction of the hepatic vein. It typically presents with right upper quadrant pain and painful ascites. You could also note hepatomegaly, jaundice and it may be associated with an acute kidney injury and so this does not fit his presentation.

Question:

A 53-year-old man presents to his GP complaining of fatigue for the past 2 months. He explains that often he feels very lightheaded.

On examination, the man has a heart rate of 89 bpm, blood pressure of 134/78 mmHg, and is apyrexial. He has conjunctival pallor and cold peripheries. He has a 25-pack-year smoking history and drinks 22 units of alcohol per week.

Blood tests are performed:

Hb 96 g/L Male: (135-180)

MCV 123 fL (80-100)

Platelets 151 \* 109/L (150 - 400)

WBC 6.3 \* 109/L (4.0 - 11.0)

Bilirubin 14 µmol/L (3 - 17)

ALP 78 u/L (30 - 100)

ALT 32 u/L (3 - 40)

γGT 96 u/L (8 - 60)

Albumin 36 g/L (35 - 50)

What is the most likely cause of the underlying diagnosis?

A.Alcohol excess

B.Folate deficiency

C.Haemolysis

D.Hypothyroidism

E.Iron deficiency

Answer:Alcohol excess

Explanation:

Isolated rise in GGT in the context of a macrocytic anaemia suggests alcohol excess as the cause

Important for meLess important

Alcohol excess is correct. This man has macrocytic anaemia, seen by the low haemoglobin and high mean cell volume. It is supported by the presenting symptoms of fatigue and lightheadedness. Alcohol also inhibits platelet production, which can be seen in this man having a platelet count on the lower boundary of normal. Common causes of macrocytic anaemia are vitamin B12 deficiency, folate deficiency, alcohol excess and hypothyroidism. The blood results have an isolated high gamma GT result in the liver function tests. This suggests that alcohol excess is the most likely cause of anaemia in this scenario, as an isolated increase in gamma GT often occurs in alcoholic liver disease and may sometimes be the only deranged result.

Folate deficiency is incorrect. This is a common cause of macrocytic anaemia and is usually due to dietary insufficiency. Long-term alcohol excess can result in a secondary folate deficiency contributing to further anaemia, however, the underlying cause is still alcohol excess. If the anaemia was specifically megaloblastic, macrocytic anaemia, it could be assumed the alcohol excess was resulting in a folate deficiency, further adding to the toxic effect alcohol has on bone marrow. However, due to the high gamma GT, alcohol excess is resulting in bone marrow damage causing anaemia in this man. Even if the folate was tested in this man and was found to be low, the direct cause of the folate deficiency has to be assumed to be alcohol excess as he is drinking 22 units a week and the gamma GT is raised indicating it is affecting his bone marrow. If folate was low, he would be given folate replacement therapy, however, until he stops drinking alcohol he will continue to be anaemic as his bone marrow is being damaged.

Haemolysis is incorrect. When red blood cells break down, products of haemolysis such as bilirubin are released. This man has a normal bilirubin level making haemolysis a very unlikely cause of the anaemia.

Hypothyroidism is incorrect. Whilst this can present with fatigue and anaemia, it does not account for the raised gamma GT and is therefore less likely than alcohol excess.

Iron deficiency is incorrect. This results in microcytic anaemia, meaning the MCV would be low. In this case, the MCV is raised making this very unlikely as a cause of the anaemia.

Question:

A 22-year-old woman presents to the Emergency Department with rapid onset abdominal pain. The pain comes and goes in waves, is located in the right iliac fossa and is rated at 7/10 severity. The patient feels nauseous and has vomited twice. Her last menstrual period was 3 weeks ago. Ultrasound imaging of the abdomen reveals a whirlpool pattern in the right iliac fossa. What is the most likely diagnosis?

A.Ectopic pregnancy

B.Appendicitis

C.Ovarian torsion

D.Mittelschmerz

E.Ovarian hyperstimulation syndrome

Answer:Ovarian torsion

Explanation:

Ovarian torsion may be associated with a whirlpool sign on ultrasound imaging

Important for meLess important

Ovarian torsion may show a classical whirlpool sign on ultrasound imaging as well as free fluid. A whirlpool sign arises when a structure twists upon itself. Appendicitis and ectopic pregnancy would not be associated with a whirlpool sign on imaging. The pain of Mittelschmerz is likely to be less severe and would not show the ultrasound finding. Ovarian hyperstimulation syndrome is associated with other clinical features such as oedema, ascites, and oliguria and may show cystic enlargement of the ovaries on ultrasound.

Question:

A 14-year-old girl presents to her GP due to developmental concerns. She is the shortest girl in her class and has failed to start menstruating. On examination she has cubitus valgus and low-set ears.

Given the likely diagnosis, which chest sign will the GP most likely elicit?

A.Bilateral wheeze

B.Ejection systolic murmur

C.Mid-diastolic murmur

D.Reduced breath sounds

E.Posterior crackles in the lower lobes

Answer:Ejection systolic murmur

Explanation:

Turner's syndrome is associated with an ejection systolic murmur due to bicuspid aortic valve

Important for meLess important

This patient is most likely suffering from Turner syndrome. Among the various complications, it may cause bicuspid aortic valve. This can cause an aortic stenosis which manifests as an ejection systolic murmur.

A mid-diastolic murmur would be heard if the patient suffered from mitral stenosis. This is not a known complication of Turner's syndrome.

The lung-related symptoms are all incorrect as Turner's does not affect lung development.

Question:

A 26-year-old woman presents to her general practitioner with a one month history of abdominal pain, bloody diarrhoea and weight loss. She is referred for colonoscopy and biopsy which shows a continuous area on inflammation confined to the mucosa and the presence of crypt abscesses.

Given her likely diagnosis, which of the following antibodies is most specific?

A.Anti-mitochondrial

B.Anti-smooth muscle

C.cANCA

D.DsDNA

E.pANCA

Answer:pANCA

Explanation:

pANCA may be positive in UC, but will likely be negative in Crohn's

Important for meLess important

This woman has presented with ulcerative colitis as supported by her symptoms and confirmed by the findings on colonoscopy. Although antibody testing cannot provide a definitive diagnosis, pANCA antibodies are present in 60-70% of cases of ulcerative colitis and only 10-15% of crohn's patients and is therefore the correct answer.

Anti-mitochondrial antibodies are present in primary biliary cirrhosis but not ulcerative colitis.

Anti-smooth muscle antibodies are present in autoimmune hepatitis but again, not ulcerative colitis.

cANCA is an antibody that may be positive in various autoimmune diseases, notably granulomatosis with polyangiitis (Wegner’s granulomatosis).

DsDNA is again present in various autoimmune conditions, notable systemic lupus erythematous.

Question:

A 64-year-old woman is admitted for a routine cholecystectomy. She has a background of type two diabetes mellitus for which she takes gliclazide once daily in the morning. Her most recent HbA1c was taken last month and returned as below. She has no other significant medical history.

HbA1c 53mmol/mol Personal target 53mmol/mol

The operation is scheduled for first thing the following morning and the patient will be fasting from midnight.

How should her diabetic medication be managed prior to surgery?

A.A variable rate insulin infusion should be started and gliclazide continued as normal

B.A variable rate insulin infusion should be started and gliclazide withheld

C.Gliclazide should be continued as normal

D.Gliclazide should be withheld from the night before surgery until the following evening

E.Her morning dose of gliclazide should be withheld only

Answer:Her morning dose of gliclazide should be withheld only

Explanation:

Surgery / diabetes: most patients taking only oral antidiabetic drugs may be managed by manipulating medication on the day of surgery, depending on the particular drug

Important for meLess important

This patient has type two diabetes mellitus (T2DM) managed with a single agent, a sulfonylurea. The guidance around managing diabetes mellitus during surgery is summarised in the BNF treatment summary 'management of diabetes during surgery' (2021). This states that, in cases of elective surgery, most patients with T2DM managed with oral antidiabetic drugs can be managed by manipulating their medications, as long as their T2DM is well-controlled. Well-controlled T2DM is defined as HbA1c under 69 mmol/L. By these standards, this patient has well-controlled T2DM and therefore is unlikely to require a switch to insulin. Note, her personal target is set at 53 mmol/mol; this is typical for patients taking sulfonylureas, where the HbA1c target is typically higher than usual due to the risk of hypoglycaemia. As sulfonylureas can cause hypoglycaemia, they shouldn't be given when fasting. The most appropriate option is therefore her morning dose of gliclazide should be withheld only. She will be able to restart her medication as normal once she is out of the theatre and eating normally.

A variable-rate insulin infusion should be started and gliclazide continued as normal is incorrect. This patient normally manages her T2DM with oral agents only. As her HbA1c shows well-controlled T2DM, there is no indication to switch her to an insulin infusion. Furthermore, continuing her gliclazide whilst fasting and whilst on an insulin infusion would put her at high risk of hypoglycaemia.

A variable-rate insulin infusion should be started and gliclazide withheld is not necessary. As above, there is no indication to switch this patient to insulin as her T2DM is well-controlled. Withholding her gliclazide on the morning of surgery is appropriate to reduce the risk of hypoglycaemia, however, this alone is adequate and an insulin infusion does not need to be added.

Gliclazide should be continued as normal is incorrect. It should be omitted on the morning of surgery when the patient is fasting due to the risk of hypoglycaemia.

Gliclazide should be withheld from the night before surgery until the following evening is incorrect as there is no need to withhold the gliclazide on the night prior to surgery. Gliclazide only needs to be withheld once the patient is fasting to reduce the risk of hypoglycaemia.

Question:

A 29-year-old woman presents to the GP surgery, reporting that she has just found out she is pregnant. She is delighted, and keen to proceed with the pregnancy.

She is 6 weeks by dates. She feels well and is currently asymptomatic.

Her past medical history is includes hypothyroidism and she takes levothyroxine 100mcg once daily.

She doesn't smoke, nor does she drink alcohol.

Body Mass Index (BMI) is 23 kg/m²

Blood pressure is 110/60 mmHg

Urine dip is negative.

What is the most appropriate advice to give regarding her levothyroxine?

A.Continue current dose of levothyroxine

B.Reduce levothyroxine dose, from today

C.Increase levothyroxine dose, from today

D.Replace levothyroxine with propylthiouracil (PTU), with dosing advised by endocrinology

E.Stop levothyroxine, and avoid all other thyroid-related medications

Answer:Increase levothyroxine dose, from today

Explanation:

Women with hypothyroidism may need to increase their thyroid hormone replacement dose by up to 50% as early as 4-6 weeks of pregnancy

Important for meLess important

Women with hypothyroidism should increase their thyroid hormone replacement dose by up to 50%, and this should occur early in the pregnancy.

As a result, it would be inappropriate to continue the current dose of levothyroxine, reduce its dose, or stop it entirely.

It would be particularly detrimental to switch to propylthiouracil, as this medication is used in the treatment of hyperthyroid patients and and could therefore potentiate her hypothyroid status.

Question:

A 46-year-old swimmer presents with left shoulder pain which has worsened over the last 2 months. She describes experiencing pain particularly when swimming front or back crawl but is ok during breaststroke. She can not lie on the affected side. On examination, you note pain on shoulder abduction from 90-120 degrees, however, no pain on palpation. She has no weakness of the rotator cuff muscles when compared to the other arm.

What is the most likely diagnosis?

A.Rotator cuff tear

B.Glenohumeral instability

C.Subacromial impingement

D.Acromioclavicular degeneration

E.Calcific tendonitis

Answer:Subacromial impingement

Explanation:

Subacromial impingement often presents with a painful arc of abduction

Important for meLess important

This is a difficult question as there is somewhat of a continuum between instability, impingement and rotator cuff tears. The correct answer here is subacromial impingement which often demonstrates a painful arc of abduction on examination - worse between 90 and 120 degrees.

Rotator cuff tears can occur either due to specific trauma or chronic impingement. Patients will normally describe weakness as well as pain and there may be muscle wasting and tenderness on palpation. Whilst these patients may also have a painful arc, a tear can be differentiated from impingement by the presence of muscle weakness when compared directly to the opposite arm. Given that the patient has no weakness or pain on palpation impingement is more likely than a rotator cuff tear.

Whilst chronic instability of the glenohumeral joint can lead to an impingement syndrome the worsening pain and severity of symptoms along with a painful arc point more towards a diagnosis of subacromial impingement.

Acromioclavicular degeneration is often associated with popping, swelling, clicking or grindings and a positive scarf test.

In calcific tendinopathy, there may be extreme pain prohibiting examination. There is also significant tenderness of palpation

Question:

You are working in general practice reviewing a 54-year-old male who has come for a 'check-up.' He advises you that he feels perfectly well and is not suffering from any symptoms but would just like to be reviewed. During the consultation the patient mentions that he has a strong family history of type 2 diabetes mellitus and you advise him that, due to his large body habitus (his latest body mass index is recorded as 39 kg/m²), he is at further risk of developing the disease. He agrees to a check of his HbA1c levels to investigate his blood glucose control. This subsequently comes back as 54 mmol/mol.

What is required to diagnose type 2 diabetes in this patient?

A.No further test required

B.A further abnormal HbA1c

C.A fasting glucose sample of below 5 mmol/litre

D.A random glucose sample of less than 11 mmol/litre

E.A random glucose sample between 7 mmol/litre and 11 mmol/litre

Answer:A further abnormal HbA1c

Explanation:

Asymptomatic patients with an abnormal HbA1c or fasting glucose must be confirmed with a second abnormal reading before a diagnosis of type 2 diabetes is confirmed

Important for meLess important

This patient has presented to the GP with no symptoms of diabetes. NICE states that 'in an asymptomatic person, the diagnosis of diabetes should never be based on a single abnormal HbA1c or fasting plasma glucose level; at least one additional abnormal HbA1c or plasma glucose level is essential. If the second test results are normal, it is prudent to arrange regular review of the person.'

As a result of the above NICE guidance, type 2 diabetes cannot be diagnosed in this patient with a single abnormal HbA1c. Therefore option 1 of no further testing can be ruled out.

A fasting sample of greater than 7 mmol/l would be indicative of type 2 diabetes so option 3 can be ruled out.

Random glucose levels of greater than 11mmol/l in patients that are symptomatic are indicative of type 2 diabetes mellitus and therefore both options 4 and 5 can be ruled out.

Question:

A 14-year-old girl is rushed into the Emergency Department with suspected meningitis. She has a 24 hour history of headache, photophobia and neck stiffness. Over the past few hours her conscious level has decreased. On examination she has a purpuric rash and a Glasgow Coma Score (GCS) of 8. An arterial blood gas (ABG) sample reveals:

pO2 9.2 kPa

pCO2 7.4 kPa

pH 7.31

HCO3- 16 mmol/l

How would you describe the acid-base balance?

A.Metabolic acidosis with partial respiratory compensation

B.Respiratory acidosis with partial metabolic compensation

C.Mixed metabolic alkalosis and respiratory alkalosis

D.Metabolic acidosis

E.Mixed metabolic acidosis and respiratory acidosis

Answer:Mixed metabolic acidosis and respiratory acidosis

Explanation:

The low pH confirms acidaemia. The high pCO2 confirms a respiratory acidosis. The low HCO3- confirms a metabolic acidosis. Therefore the acid-base balance is a mixed metabolic acidosis and respiratory acidosis.

The metabolic acidosis is likely due to sepsis.

The respiratory acidosis has likely occurred due to a decreased respiratory drive as a result of impaired consciousness. However it would also be crucial to rule out any brainstem pathology affecting the respiratory centres.

Question:

A 60-year-old woman presents to the Emergency Department with a three week history of breathlessness and a dry cough. She does not smoke and drinks 15 units of alcohol a week. There is a target rash present on both her lower limbs. Her chest x-ray shows reticulo-nodular shadowing of the right lung. A diagnosis of bacterial pneumonia is made. What is the most likely organism causing her symptoms?

A.Klebsiella pneumoniae

B.Streptococcus pneumoniae

C.Mycoplasma pneumoniae

D.Legionella pneumophila

E.Staphylococcus aureus

Answer:Mycoplasma pneumoniae

Explanation:

The dry cough, erythema multiforme (symmetrical target shaped rash with a central blister) and the radiological findings point to a diagnosis of Mycoplasma.

Although pneumococcal pneumonia is the most common pneumonia in the community, you would expect lobar consolidation on x-ray as well as a productive, rather than dry, cough.

Klebsiella occurs in alcoholics, and although the woman drinks more than her allowance (for women this is 14 units a week) it is not at the level where it would predispose her to Klebsiella. Furthermore, it typically causes a cavitating pneumonia of the upper lobes.

Question:

A 60-year-old-male goes to his GP complaining of forgetfulness for the past 2 months. He has difficulty remembering details such as leaving the kettle on and where he left his keys. He works as the director of a pharmaceutical company and describes stress at work. He also has difficulty sleeping at night. His mini mental state examination (MMSE) score is 26 out of 30. Patient answered 'I don't know' to the last two letters when asked to spell WORLD backwards. His medical history includes hypertension and gout.

What is the most likely diagnosis?

A.Alzheimer's disease

B.Fronto-temporal dementia

C.Vascular dementia

D.Parkinson's disease

E.Depression

Answer:Depression

Explanation:

Sleep disturbance, stress triggers and normal mini-mental test score with global memory loss suggests depression rather than dementia

Important for meLess important

This is more likely a case of pseudodementia secondary to depression. Once the patient's depression is managed, his cognitive impairment will be reversed.

Question:

A 68-year-old man presents to the emergency department with sudden-onset difficulty in speaking and comprehending language. He also has significant weakness of the right arm. He has a past medical history of diabetes and hypertension.

After examination, a CT head scan shows left-sided cerebral hypoattenuation, indicating ischaemia.

Given the likely diagnosis, he is referred to the appropriate team and spends a considerable amount of time in hospital. After discharge, the community team follows him up and wishes to measure his level of disability and dependence with regards to daily living.

Which of the following is best for this purpose?

A.Barthel scale

B.FAST test

C.MUST

D.ROSIER scale

E.Waterlow score

Answer:Barthel scale

Explanation:

The Barthel index is a scale that measures disability or dependence in activities of daily living in stroke patients

Important for meLess important

The correct answer is the Barthel scale, or Barthel index. This patient has had a stroke - the Barthel scale allows for the measurement of disability or dependence in activities of daily living in stroke patients.

FAST is an acronym, often advertised to the general public, used to help recognise the early signs of stroke and improve responsiveness to their needs. It stands for facial drooping, arm weakness, speech difficulties and 'time to call the emergency services'. It would not be used in the longer-term assessment of post-stroke disability.

The MUST, or 'Malnutrition Universal Screening Tool', is used to identify malnourished adults or those at risk of malnutrition. Whilst it may be useful in stroke patients, especially in those who have difficulty with food intake post-stroke, it is not specifically measuring disability in stroke patients as the Barthel scale does.

The ROSIER scale, or 'Recognition of Stroke in the Emergency Room', is used in an emergency setting to differentiate acute stroke from stroke mimics. It would not play a role in longer-term stroke assessment.

The Waterlow score is used to estimate the risk of development of a pressure sore in a patient, factoring in variables such as mobility. Whilst it also may be useful in a stroke patient who has lost their mobility, it is not specifically designed to assess disability in stroke patients like the Barthel score.

Question:

A 29-year-old woman who has just been diagnosed with rheumatoid arthritis presents for review. Her rheumatologist has started methotrexate to help control her symptoms. She currently has no children but is planning to start a family in the next two years. What is the BNF advice regarding methotrexate and pregnancy?

A.She can conceive on methotrexate but should be on a folic acid dose of 5mg, rather than 400mcg/day

B.She can conceive as soon as methotrexate is stopped

C.She should wait at least 3 months after stopping methotrexate before trying to conceive

D.She should wait at least 6 months after stopping methotrexate before trying to conceive

E.She should wait at least 12 months after stopping methotrexate before trying to conceive

Answer:She should wait at least 6 months after stopping methotrexate before trying to conceive

Explanation:

Patients using methotrexate require effective contraception during and for at least 6 months after treatment in men or women

Important for meLess important

Question:

Which one of the following is not part of the core Child Health Promotion Program as outlined in the Children's National Service Framework?

A.GP examination at 6-8 weeks

B.Newborn clinical examination

C.Heel-prick test at 5-9 days

D.8-9 month surveillance review

E.Newborn hearing check

Answer:8-9 month surveillance review

Explanation:

The routine surveillance reviews at 8 months, 2 years and 3-4 years have now being stopped. However, if a child is deemed 'at risk' more frequent reviews are advisable

Question:

A multiparous woman at 40 weeks gestation is admitted to the labour ward following an artificial rupture of membranes. Her attending midwife is carrying out four-hourly vaginal examinations when suddenly the umbilical cord becomes palpable vaginally. The midwife places the woman on cardiotocography that shows late decelerations.

What is the next immediate step the midwife should do in her management?

A.Administer oxytocin infusion

B.Administer tocolytics to stop uterine contractions

C.Perform McRoberts manoeuvre

D.Push presenting part of the foetus back in

E.Push the umbilical cord back in

Answer:Push presenting part of the foetus back in

Explanation:

Following an umbilical cord prolapse, the presenting part of the fetus may be pushed back into the uterus to avoid compression

Important for meLess important

Push presenting part of the foetus back in is correct. The presence of a palpable umbilical cord vaginally and foetal distress (indicated by late decelerations on cardiotocography) is suggestive of an umbilical cord prolapse, which is a medical emergency. It can be caused by artificial rupture of membranes, which is what this patient underwent. Following an umbilical cord prolapse, the vital thing is to push the presenting part of the fetus back into the uterus to prevent umbilical cord compression and foetal distress. Usually retro-filling the bladder with 300-500ml of saline and placing the mother on 'all fours' can also aid in pushing the fetus back into the uterus and preventing foetal distress.

Administer oxytocin infusion is incorrect. This would increase the force and frequency of uterine contractions that would hasten cord compression as opposed to preventing it and lead to further foetal distress.

Administer tocolytics to stop uterine contractions is incorrect. This can be considered later on to prevent labour from progressing and reducing the risk of cord compression, however, this needs to be managed immediately and the time taken to prepare the tocolytics and wait for them to come into effect can risk foetal distress due to continued cord compression. Measures such as pushing the presenting part back in, retro-filling the bladder, and placing the mother on 'all fours' are quicker and easier methods that can alleviate cord compression initially.

Perform McRoberts manoeuvre is incorrect. This is used in shoulder dystocia and does not play a role in umbilical cord prolapse.

Push the umbilical cord back in is incorrect. The umbilical cord must be handled minimally to avoid the risk of compression or damage. It should be kept warm and moist. Hence, it would be inappropriate to push it back into the uterus.

Question:

A 55-year-old man with treatment-resistant gastro-oesophageal reflux disease (GORD) has been referred to the surgeons for fundoplication. Which of the following investigation will be required by the surgeon's before the surgery is performed?

A.Manometry studies

B.Laryngoscopy

C.Neck ultrasound

D.Erect abdominal X-ray

E.Blood cultures

Answer:Manometry studies

Explanation:

Patients with GORD being considered for fundoplication surgery require oesophageal pH and manometry studies

Important for meLess important

This question is asking for the pre-operative workup for a patient undergoing a Nissen fundoplication for treatment-resistant GORD. In this case, the only test above that is required is oesophageal manometry. This measures the pressures within the lower oesophageal sphincter and helps to confirm the diagnosis of GORD.

Other required investigations include an endoscopy, barium swallow and pH monitoring

Question:

A Cardiotocogram (CTG) is performed on a 28-year-old female at 36 weeks gestation who has attended labour ward in spontaneous labour. The CTG shows a foetal heart rate of 120bpm and variable decelerations and accelerations are present. There are no late decelerations. However, the midwife notices a 20 minute period where the foetal heart rate only varies by 3-4bpm. The mum is concerned as she has not felt her baby move much for about 20 mins and would like to know what the likely cause is. She starts crying when she tells you that she took some paracetamol earlier as she was in so much pain from the contractions and is worried this has harmed her baby. Which of the following is the most likely cause of this decreased variability?

A.Prematurity

B.Foetal acidosis

C.Foetus is sleeping

D.Foetal tachycardia

E.Side effect of the paracetamol

Answer:Foetus is sleeping

Explanation:

The most common explanation for short episodes (< 40 minutes) of decreased variability on CTG is that the foetus is asleep. However, if the decreased variability lasts for more than 40 minutes, we start to worry. Other causes of decreased variability in foetal heart rate on CTG are due to maternal drugs (such as benzodiazepines, opioids or methyldopa - not paracetamol), foetal acidosis (usually due to hypoxia), prematurity (< 28 weeks, which is not the case here), foetal tachycardia (> 140 bpm, again not the case here) and congenital heart abnormalities.

Question:

A 32-year-old man presents to the acute surgical unit with acute pancreatitis. Over the next few days he becomes dyspnoeic and his saturations are 89% on air. A CXR shows bilateral pulmonary infiltrates. His pulmonary capillary wedge pressure is normal. What is the most likely diagnosis?

A.Cardiac failure

B.Pneumococcal pneumonia

C.Staphylococcal pneumonia

D.Pneumocystis carinii

E.Acute respiratory distress syndrome

Answer:Acute respiratory distress syndrome

Explanation:

Acute pancreatitis is known to precipitate ARDS. ARDS is characterised by bilateral pulmonary infiltrates and hypoxaemia. Note that pulmonary oedema is excluded by his normal pulmonary capillary wedge pressure.

Question:

A 79-year-old man with a past medical history of chronic obstructive pulmonary disease (COPD) presents to their GP with worsening shortness of breath, cough, and wheeze for the past week. The cough is productive of white sputum. The only finding on examination is a widespread expiratory wheeze. His observations are heart rate 82/min, respiratory rate 22/min, blood pressure 134/79 mmHg, oxygen saturations 96% on air, and temperature 37.4ºC.

What is the most appropriate management for this patient?

A.Admit to hospital for IV hydrocortisone

B.Admit to hospital for intravenous (IV) amoxicillin

C.Oral amoxicillin for 7 days

D.Oral prednisolone for 5 days

E.Oral prednisolone and oral amoxicillin for 7 days

Answer:Oral prednisolone for 5 days

Explanation:

NICE only recommend giving oral antibiotics in an acute exacerbation of COPD in the presence of purulent sputum or clinical signs of pneumonia

Important for meLess important

The correct answer is oral prednisolone for 5 days.

This patient is presenting with an acute exacerbation of their COPD. As such, they should be prescribed a 5-day course of prednisolone (typically 30mg daily) to manage this. He does not require antibiotics as he does not have purulent sputum or any clinical signs of pneumonia.

Admission to hospital for IV hydrocortisone is not necessary in this case as the patient is clinically stable. IV hydrocortisone may be required in COPD exacerbation if the patient is severely unwell or unable to swallow.

Admission to hospital for IV amoxicillin is not necessary in this case as the patient is clinically stable with no signs of infection.

Oral amoxicillin is incorrect as the patient does not have purulent sputum or any other clinical signs suggesting an infectious cause of his symptoms.

Oral prednisolone and oral amoxicillin would only be appropriate if the patient had purulent sputum or clinical signs of pneumonia.

Question:

An 18-year-old female presents with increasingly heavy menorrhagia and fatigue. Routine blood tests are ordered:

Hb 96 g/L

MCV 71 fL

Platelets 356 x 10^9/L

Bleeding time prolonged

APTT 62 seconds

What is the most likely diagnosis?

A.Fibroids

B.Physiological menorrhagia

C.Hypothyroidism

D.Haemophilia A

E.von Willebrand disease

Answer:von Willebrand disease

Explanation:

The low Hb and MCV suggest iron deficiency anaemia which would be explained by the menorrhagia.

There is nothing in the history to suggest a gynaecological cause of the menorrhagia. It is important to remember that there are multiple systemic causes of menorrhagia.

In the context of haematological disorders menorrhagia occurs due to problems with primary haemostasis. A prolonged bleeding time is also suggestive of a primary haemostasis problem. A normal platelet count suggests that thrombocytopenia is not the cause of the problem. Therefore von Willebrand disease should be right at the top of your differential. A prolonged APTT is further evidence for the diagnosis of von Willebrand disease. It is important to remember that von Willebrand factor acts to stabilise F VIII, and thus deficiencies in von Willebrand factor can result in lower levels of F VIII and a prolonged APTT. Haemophilia A also results in a prolonged APTT however the bleeding time should be normal as this is a disorder of secondary haemostasis. In addition we would expect deep bleeds (e.g. intra-muscular and intra-articular) in a disorder of secondary haemostasis.

Question:

A 12-year-old boy with a history of coeliac disease attends surgery with his mother for his scheduled pneumococcal and influenza vaccinations. He is due to enter Year 8 of school this year, and has received all other routine childhood immunisations to this date.

Which other vaccination will he also be offered at this stage?

A.Hepatitis B

B.Human papilloma virus (HPV)

C.Measles, mumps and rubella (MMR)

D.Meningitis ACWY

E.Tetanus, diphtheria and polio

Answer:Human papilloma virus (HPV)

Explanation:

12-13 years immunisations: HPV vaccination for girls AND boys

Important for meLess important

The human papilloma virus (HPV) is now routinely offered to both girls and boys between 12 and 13 years old entering school Year 8, hence this is the correct answer.

Hepatitis B vaccination is routinely offered at 2, 3 and 4 months of age.

The MMR vaccine is administered at 1 year and 3 years, 4 months of age.

The meningitis ACWY vaccine is offered between 13-15 years of age in school and to all university 'freshers' up to 25 years old.

The tetanus, diphtheria and polio vaccine is offered at age 14.

Question:

A 15-year-old girl is referred to haematology. She started having periods three years ago which have always been heavy and prolonged. Unfortunately the menorrhagia has responded poorly to trials of tranexamic acid and the combined oral contraceptive pill. Blood tests show the following:

Hb 10.3 g/dl

Plt 239 \* 109/l

WBC 6.5 \* 109/l

PT 12.9 secs

APTT 37 secs

What is the most likely diagnosis?

A.Haemophilia B

B.Disseminated intravascular coagulation

C.Haemophilia A

D.Idiopathic thrombocytopenic purpura

E.Von Willebrand's disease

Answer:Von Willebrand's disease

Explanation:

Von Willebrand's disease is the most likely diagnosis as it is the most common inheritied bleeding disorder. The mildy elevated APTT is consistent with this diagnosis.

The mild anaemia is consistent with the long history of menorrhagia.

Question:

A 21-year-old woman comes back to your GP surgery with intractable sadness all the time, loss of appetite, insomnia and says she no longer enjoys anything. She has tried making lifestyle changes and setting herself small, manageable goals but says that she still feels hopeless and would like to try some medication. You prescribe sertraline.

What medication should be avoided in patients taking a selective serotonin reuptake inhibitor (SSRI)?

A.Amiodarone

B.Combined oral contraceptive pill

C.Levothyroxine

D.Progesterone-only pill

E.Sumatriptan

Answer:Sumatriptan

Explanation:

Triptans should be avoided in patients taking a SSRI

Important for meLess important

Sumatriptan is the only medication out of all the options that should be avoided in patients also taking SSRIs. This is because of an increased risk of developing serotonin syndrome. Triptans are serotonin receptor agonists, while SSRIs reduce the reuptake of serotonin from the synaptic cleft. Both drugs work to increase serotonin levels and could therefore lead to serotonin syndrome, which may cause:

Hypertension

Muscle rigidity

Pupillary dilatation

Rapid heart rate

Confusion

Agitation

Loss of muscle coordination

Diarrhoea

Shivering

Fever

Seizures

Amiodarone is a drug prescribed for patients with cardiac arrhythmias and does not interact with SSRIs. Patients on amiodarone require monitoring of thyroid function and liver function as long-term use may cause hypo/hyperthyroidism and cirrhosis (rare).

The combined oral contraceptive pill is a form of oral hormonal birth control and does not interact with SSRIs. Side effects associated with taking the combined oral contraceptive pill include headache, nausea, mood swings and breast pain. Serious complications can include ischaemic stroke, venous thromboembolism, breast cancer and cervical cancer.

Levothyroxine is prescribed to patients for thyroid hormone replacement in hypothyroidism and does not interact with SSRIs. Levothyroxine and amiodarone should not be taken together due to the increased risk of hyperthyroidism and thyrotoxicosis. Antacids should also not be taken with levothyroxine as they can decrease the absorption of levothyroxine.

The progesterone-only pill is another form of oral hormonal birth control that does not interact with SSRIs. Side effects include headache, nausea, changes in libido and ovarian cysts (benign). Progesterone-only pills (except desogestrel) may also cause a slight increase in the risk of ectopic pregnancy. It differs from the combined pill in that it does not increase the risk of venous thromboembolism.

Question:

Which one of the following is not associated with carpal tunnel syndrome?

A.Tinel's sign

B.Compression of the median nerve

C.Wasting of the hypothenar eminence

D.Flexion of the wrist reproduces symptoms

E.Weakness of thumb abduction

Answer:Wasting of the hypothenar eminence

Explanation:

Question:

A 13-year-old girl presents to clinic with right knee pain. She is a keen hockey player but has had no recent injuries. On examination there is a painful swelling over the tibial tubercle. What is the most likely diagnosis?

A.Chondromalacia patellae

B.Osteosarcoma

C.Osgood-Schlatter disease

D.Osteochondritis dissecans

E.Juvenile idiopathic arthritis

Answer:Osgood-Schlatter disease

Explanation:

Question:

What is the most useful investigation to screen for the complications of Kawasaki disease?

A.Echocardiogram

B.Lumbar puncture

C.Coronary angiogram

D.MRI of posterior fossa

E.ECG

Answer:Echocardiogram

Explanation:

Coronary artery aneurysms are a complication of Kawasaki disease and this should be screened for with an echocardiogram

Important for meLess important

Question:

A 70-year-old man is being reviewed for a six-month history of a progressive cough, occasional episodes of haemoptysis and significant weight loss. He has smoked from a young age and has a 22-pack-year history.

On examination, the patient is wasted and has swelling and clubbing of the fingers. A mass is identified on chest x-ray, and bronchoalveolar lavage cytology confirms a non-small-cell lung carcinoma with squamous appearing tumour cells.

What paraneoplastic feature is most commonly associated with this patient's carcinoma?

A.Cushing's syndrome

B.Gynaecomastia

C.Hypertrophic pulmonary osteoarthropathy

D.Lambert-Eaton syndrome

E.Syndrome of inappropriate antidiuretic hormone secretion

Answer:Hypertrophic pulmonary osteoarthropathy

Explanation:

Squamous cell carcinoma is associated with hypertrophic pulmonary osteoarthropathy (HPOA)

Important for meLess important

The patient in the vignette has features of squamous cell carcinoma (SCC) of the lung. SCC is a non-small-cell lung carcinoma that originates in the bronchi and is strongly linked to tobacco smoke. SCCs are associated with several paraneoplastic syndromes, including hypertrophic pulmonary osteoarthropathy (HPOA), which is the combination of clubbing and periostitis of the small hand joints. As seen in this case, patients present with clubbing of the nails and swelling of the finger joints. HPOA as a paraneoplastic feature is also observed in the adenocarcinoma of the lung. Other paraneoplastic features of lung SCC include parathyroid hormone-related protein secretion and hyperthyroidism due to ectopic thyroid-stimulating hormone release.

Cushing’s syndrome is a collection of signs and symptoms secondary to prolonged glucocorticoid exposure and can present as part of a paraneoplastic syndrome due to increasing adrenocorticotropic hormone (ACTH) release. Increased ACTH release is more commonly associated with small cell carcinomas, not squamous cell carcinomas, as in this case.

Gynaecomastia is the abnormal, non-cancerous enlargement of one or both breasts in men and can present due to several different conditions, including as part of a paraneoplastic syndrome. Gynaecomastia is generally associated with adenocarcinomas, not SCC, and is thought to be due to an increased oestrogen/androgen ratio secondary to sex hormone release.

Lambert-Eaton syndrome is a rare autoimmune condition, similar to myasthenia gravis, characterised by limb muscle weakness which is classically temporarily relieved after exertion/physical exercise. The condition is generally considered a paraneoplastic syndrome, with most patients having an underlying malignancy, the most common of which is small-cell lung cancer. The condition is not commonly associated with SCCs as in this case.

Syndrome of inappropriate antidiuretic hormone secretion (SIADH), as the name suggests, is a result of excess ADH release, causing an increase in water re-absorption from the kidneys and hyponatraemia. As a paraneoplastic syndrome, SIADH is generally associated with small cell cancer, not SCC.

Question:

A 58-year-old woman presents to her general practitioner, with a 2-week history of pain on the lateral aspect of her right thigh. The pain has got gradually worse and radiates downwards to just above the right knee. The pain is exacerbated when she is sleeping on her right side and sometimes awakens her at night. On examination, she has point tenderness on palpation of the lateral aspect of the right hip and precipitates the radiation of the pain down the thigh. Passive external rotation of the abducted hip exacerbates the pain.

What is the most likely diagnosis of this patient?

A.Femoral head avascular necrosis

B.Hip fracture

C.Iliopsoas tendonitis

D.Iliotibial band syndrome

E.Trochanteric bursitis

Answer:Trochanteric bursitis

Explanation:

Trochanteric bursitis presents with isolated lateral hip/thigh pain with tenderness over the greater trochanter

Important for meLess important

Trochanteric bursitis is correct. This is a classic history of trochanteric bursitis, with insidious onset lateral thigh pain, radiating down the thigh, but not extending down the entire leg. The examination findings are consistent with trochanteric bursitis, as this woman has focal tenderness over the greater trochanter and her pain is exacerbated with external rotation of the hip.

Femoral head avascular necrosis is an important differential to consider. Most commonly the pain of this is localised in the groin area but may manifest in the ipsilateral buttock, knee, or greater trochanteric region. Passive range of motion of the hip is limited, especially passive abduction and forced internal rotation.

Hip fracture is incorrect. There is no history of trauma or injury. Typical findings on examination would be a shortened and externally rotated leg.

Iliopsoas tendonitis usually presents with insidious onset of anterior hip or groin pain. There is usually a precipitating activity like with other types of tendonitis.

Iliotibial band syndrome usually presents with lateral knee pain, usually after running.

Question:

A 19-year-old medical student attends her GP surgery with a one-day history of increased urinary frequency, dysuria and cloudy urine. There is no significant past medical history and the patient is on the combined oral contraceptive pill for contraception. She has no allergies and takes no other medications, and is systemically well.

A urine dip is positive for leucocytes and blood, and is negative for nitrites.

What is the most appropriate management of this patient?

A.No treatment is required

B.Trimethoprim 3 days, do not send MSU

C.Trimethoprim 3 days, send MSU

D.Trimethoprim 7 days, do not send MSU

E.Trimethoprim 7 days, send MSU

Answer:Trimethoprim 3 days, send MSU

Explanation:

Send an MSU for all women with a suspected UTI if associated with visible or non-visible haematuria

Important for meLess important

The correct answer is Trimethoprim 3 days, send MSU . All UTIs with visible or non-visible haematuria should have a MSU sent. Three days is the correct length of antibiotic prescription for a woman. If this patient were male, a seven-day course would be appropriate.

The urine should be re-tested after completing treatment with an appropriate antibiotic — if haematuria is persistent consider possible underlying causes (such as pyelonephritis, urological cancer, gynaecological cancer, CKD).

Question:

A 64-year-old man is seen in the memory clinic with an 8-month history of cognitive decline. His wife tells you that he has difficulty remembering basic tasks and is becoming more confused and forgetful than usual. She has also noticed a change in his personality and has caught him swearing more frequently and answering the door naked on multiple occasions. His mother had a similar reputation for being “too outspoken” in her twilight years. He reports smoking 20 cigarettes/day and drinks 1 glass of wine each evening.

What is the most likely diagnosis?

A.Alzheimer’s dementia

B.Creutzfeldt-Jakob disease

C.Frontotemporal dementia

D.Lewy body dementia

E.Vascular dementia

Answer:Frontotemporal dementia

Explanation:

Frontotemporal dementia presents with social disinhibition and often has a family history

Important for meLess important

This patient has frontotemporal lobar degeneration (FTLD). There are 3 subtypes of FTLD including frontotemporal dementia (or Pick's disease), progressive non-fluent aphasia, and semantic dementia. Of the 3 subtypes, this patient has Pick's disease which is characterised by an insidious onset, commonly before 65 years, and a change in personality and social disinhibition. The positive family history also makes frontotemporal dementia more likely.

Alzheimer's disease is the most common type of dementia. However, unlike this presentation, Alzheimer's dementia presents as a progressive decline in episodic memory. Visuospatial awareness may be impacted. Social disinhibition is not a common presenting feature and suggests an alternative diagnosis.

Creutzfeldt-Jakob disease is a very rare condition. It is a type of prion disease that causes rapid and progressive neurodegeneration. Cognitive decline and personality change are features. However, typically additional symptoms such as abnormal jerking movements, loss of coordination, mobility, vision and slurred speech are also present.

Lewy body dementia is a type of dementia characterised by fluctuating confusion and hallucinations. There is an overlap with Parkinson's disease and motor symptoms may also be seen such as bradykinesia, tremor and a shuffling gait.

Vascular dementia is a type of dementia that follows a step-wise progression. Symptoms tend to vary depending on the areas of the brain affected by vascular disease. However, the degree of social disinhibition and positive family history in this case presentation makes vascular dementia less likely.

Question:

A 76-year-old woman presents to the emergency department with abdominal pain and distention. She has been feeling unwell for the past 5 hours and she has vomited four times. Her past medical history includes asthma and an appendicectomy in her late 30s. On examination, her abdomen is distended but not peritonitic, with absent bowel sounds. Her electrolytes were assessed and are as follows:

Na+ 137 mmol/L (135 - 145)

K+ 3.5 mmol/L (3.5 - 5.0)

Bicarbonate 25 mmol/L (22 - 29)

Urea 3 mmol/L (2.0 - 7.0)

Creatinine 110 µmol/L (55 - 120)

Calcium 2.5 mmol/L (2.1-2.6)

Phosphate 1.2 mmol/L (0.8-1.4)

Magnesium 0.8 mmol/L (0.7-1.0)

Which one of the following is the first-line management of her condition?

A.Intravenous fluids and antibiotics

B.Intravenous fluids and surgery

C.Nasogastric tube insertion and intravenous fluids with additional magnesium

D.Nasogastric tube insertion and intravenous fluids with additional potassium

E.Sigmoidoscope insertion with flatus tube

Answer:Nasogastric tube insertion and intravenous fluids with additional potassium

Explanation:

First-line medical management of small bowel obstruction involves IV fluids and gastric decompression, or 'drip-and-suck'

Important for meLess important

The correct answer is nasogastric tube insertion and intravenous fluids with additional potassium. The patient is presenting with a classical picture of small bowel obstruction. She has intense abdominal pain associated with early vomit. Additionally, she had a previous abdominal surgery that could have caused adhesions, the most common cause of small bowel obstruction. These cases are initially managed medically, with the insertion of a nasogastric tube to decompress the small bowel and intravenous fluids with additional potassium. The fluid is needed because when the bowel segment becomes occluded, the proximal segment of the bowel will enlarge and undergo more peristalsis. This will lead to the secretion of electrolytes in the bowel, most importantly, potassium, causing hypokalemia.

Intravenous fluids and antibiotics would be the correct answer if the patient had acute pancreatitis. This usually presents with intense epigastric pain and vomiting, and it is most likely caused by alcohol or gallstones. The patient, in this case, is presenting with classical symptoms of small bowel obstructions and an important risk factor for it, making it the most likely diagnosis.

Intravenous fluids and surgery are wrong because the first-line management for obstruction is medical. If this repeatedly fails, then surgery is an option to resolve the issue.

Nasogastric tube insertion and intravenous fluids with additional magnesium are wrong; it is more important to replace potassium due to potential cardiac complications of hypokalaemia.

Sigmoidoscope insertion with a flatus tube is wrong since the patient has a small bowel obstruction, not large bowel obstruction. Large bowel obstruction presents with abdominal pain, absent bowel movements and no flatus passage. The most common cause is cancer.

Question:

A 53-year-old man is admitted to hospital with a chest infection and has a set of routine bloods done in the emergency department. His HbA1c result is shown below:

HbA1c 48 mmol/mol (27-48 mmol/mol)

Which of the following medical conditions would mean this result would over-estimate his blood sugar levels?

A.Sickle-cell anaemia

B.Hereditary spherocytosis

C.G6PD deficiency

D.Splenectomy

E.Beta-thalassaemia

Answer:Splenectomy

Explanation:

Splenectomy can give a falsely high HbA1c level due to the increased lifespan of RBCs

Important for meLess important

Measuring HbA1c levels is becoming the most common test for diabetes as it provides an average blood glucose level over a period of time of about 3 months. This corresponds to the life span of a normal red blood cell. The two things that can result in a higher HbA1c reading are a higher average blood glucose concentration and a longer red cell life span. Therefore, the only condition here which would result in the HbA1c being an over-estimate of blood sugar would be a previous splenectomy as this would increase the red blood cell life span. All the other conditions would decrease their life span and consequently reduce the HbA1c.

Question:

A 67-year-old female presents to your clinic with worsening breathlessness for the past 3 months on a long-standing background of COPD. She reports how she becomes breathless much quicker on exertion around the house, and that she is finding it difficult to achieve most of her activities of daily living. The long-standing cough that she suffers with remains non-productive and has not worsened.

Her regular medications include a Fostair inhaler which she uses regularly each day, and a salbutamol inhaler that is used when required. You note that Fostair is a combination inhaler containing a long-acting beta-agonist (LABA) and an inhaled corticosteroid (ICS), and she has used this with good effect for the past 3 years.

Which of the following is the next best step in this patient's management?

A.Add Spiriva inhaler (long-acting muscarinic-agonist; LAMA) to current regime

B.Add oral theophylline

C.Start regular prophylactic antibiotic therapy

D.Switch Fostair for Trimbow (a combined LABA + LAMA + ICS inhaler)

E.Switch Fostair for Ultibro (a combined LABA + LAMA inhaler)

Answer:Switch Fostair for Trimbow (a combined LABA + LAMA + ICS inhaler)

Explanation:

COPD - still breathless despite using SABA/SAMA and a LABA + ICS → add a LAMA

Important for meLess important

This patient has worsening breathlessness on a background of COPD. Currently they are being managed on a short-acting beta-agonist (SABA) + long-acting beta-agonist (LABA) + an inhaled corticosteroid (ICS). The next best step, in line with current NICE guidelines, is to ensure that the patient is on a SABA + LABA + ICS + a long-acting muscarinic-agonist (LAMA).

This could be achieved by switching the combined LABA/ICS to a combined LABA/LAMA/ICS or by adding a separate LAMA inhaler. However, NICE guidelines recommend that combination inhalers should be used where possible to increase medication compliance, therefore the best option would be to switch Fostair (LABA + ICS) for Trimbow (a combined LABA + LAMA + ICS inhaler).

Switching the patient to a combined LABA/LAMA that does not contain an ICS would be inappropriate, as an ICS would have been continued due to the steroid responsiveness of the patient.

Oral theophylline may be appropriate in the future, but since this patient has not yet tried a LAMA, this would not be suitable. Theophylline is also indicated when patients cannot tolerate inhaled therapies; in this patient, this is not the case.

Starting regular prophylactic antibiotic therapy (azithromycin) is indicated when patients with COPD have increased infective exacerbations, and are not used to treat worsening breathlessness.

Question:

A 47-year-old man presents to the general practitioner with a 6-month history of a chronic erythematous rash of the central face associated with papules. The rash is aggravated by sun exposure. He has a past medical history of gastro-oesophageal reflux disease, no allergies and has never sought medical assistance for this condition before.

Which of the following management options would be considered first-line in this patient?

A.Oral erythromycin

B.Topical benzoyl peroxide

C.Topical doxycycline

D.Topical ivermectin

E.Topical retinoid

Answer:Topical ivermectin

Explanation:

Rosacea: topical ivermectin is first-line for patients mild papules and/or pustules

Important for meLess important

This patient is presenting with an erythematous rash on the nose, forehead and cheeks associated with telangiectasis and papules. The character of the rash, together with her age, makes the diagnosis of rosacea most likely. First-line management of this condition is with topical ivermectin.

Oral erythromycin is incorrect as this is the management of rosacea refractory to treatment with topical metronidazole.

Topical benzoyl peroxide is incorrect as this is more commonly used in the early management of acne vulgaris.

Topical doxycycline is incorrect, this is more commonly used in the early management of acne vulgaris.

Topical retinoid is incorrect as this is more commonly used in the early management of acne vulgaris.

Question:

A 34-year-old accountant presents with a one week history of pain around his right eye occurring once or twice a day. They are described as being very severe and lasting between 10-30 minutes each. He also describes a feeling of a blocked nose. What is the treatment of choice to treat this current episode?

A.Ibuprofen

B.Acetazolamide + topical pilocarpine

C.Prednisolone

D.Subcutaneous sumatriptan

E.Ergotamine

Answer:Subcutaneous sumatriptan

Explanation:

Cluster headache - acute treatment: subcutaneous sumatriptan + 100% O2

Important for meLess important

Standard analgesia is rarely effective in cluster headaches. 100% oxygen may also be used

Question:

A 9-year-old girl is brought in by her mother for symptoms of upper respiratory tract infection. You notice during examination that there are multiple bruises on her shins with parallel pattern. Of the following, which is more common in child physical abuse?

A.Humeral fracture

B.Scaphoid fracture

C.Tibial fracture

D.Pelvic fracture

E.Ankle fracture

Answer:Humeral fracture

Explanation:

Of course, the clinical history must be taken into account whenever a non-accidental injury (NAI) is suspected.

The most common fractures associated with child abuse are:

- Radial

- Humeral

- Femoral

Common fractures in paediatrics not associated with NAI are:

- Distal radial

- Elbow

- Clavicular

- Tibial

Question:

A 60-year-old man presents to your clinic with typical features of seborrhoeic dermatitis. He also complains of having itchy eyes.

Which of the following is a most likely diagnosis alongside seborrhoeic dermatitis for this man?

A.Herpes zoster ophthalmicus

B.Viral conjunctivitis

C.Anterior uveitis

D.Blepharitis

E.Ectropion

Answer:Blepharitis

Explanation:

Blepharitis may be present in cases of seborrhoeic dermatitis

Important for meLess important

Blepharitis may be associated with seborrhoeic dermatitis, dry eye syndrome and acne rosacea. The treatment remains the same in that patients should clean their eyelids twice daily and use a warm compress with their eyes shut for a 5-10 minute period.

There is no reason as to why there should be an increased likelihood of the other options in this question.

Question:

A 27-year-old woman who is currently 39 weeks pregnant comes to see you complaining of itching down below. She has thick white discharge.

Given the likely diagnosis, which one of the following treatment options would you advise?

A.Clotrimazole pessary

B.Oral fluconazole 150mg stat

C.Oral fluconazole 150mg for 3 days,

D.Metronidazole 400mg bd for 5 days

E.Metronidazole 2g stat dose

Answer:Clotrimazole pessary

Explanation:

This patient has thrush which is treated with antifungal medication. This patient is pregnant, therefore cannot be given oral fluconazole as this is contraindicated in pregnancy due to its association with congenital abnormalities.

Metronidazole is used in the treatment of bacterial vaginosis and Trichomonas vaginalis.

Question:

What is the most common type of multiple sclerosis?

A.Relapsing-remitting disease

B.Amyotrophic lateral sclerosis

C.Secondary progressive disease

D.Progressive-relapsing disease

E.Primary progressive disease

Answer:Relapsing-remitting disease

Explanation:

Question:

A 4-year-old boy is found collapsed and unresponsive. On examination, there is no visible airway obstruction. There are no signs of life and there is no evidence of any respiratory efforts being made. His airway has been opened and help has been called for and is on its way.

Of the options listed, what is the most appropriate next step in his management?

A.Check for a femoral pulse

B.Give 2 rescue breaths

C.Give 5 rescue breaths

D.Start chest compressions at a ratio of 15:2

E.Start chest compressions at a ratio of 30:2

Answer:Give 5 rescue breaths

Explanation:

Paediatric BLS: give 5 rescue breaths if there are no signs of breathing on initial assessment

Important for meLess important

Give 5 rescue breaths is correct. The guidelines for paediatric basic life support (BLS) have been updated in 2021 and state the most important initial step for any child without signs of breathing is to give 5 rescue breaths immediately, even before checking for a pulse. This is because, in children, the most common causes of arrest are respiratory as opposed to cardiac in adults. The next step could be to check for signs of circulation, which could involve checking the femoral pulse, however, this is not necessary to decide whether chest compressions are necessary. The updated guidelines state that 'feeling for a pulse is not a reliable way to determine if there is an effective or inadequate circulation, and palpation of the pulse is not the determinant of the need for chest compressions.'

Check for a femoral pulse is incorrect. The most appropriate initial step is to give 5 rescue breaths. In children, the most common causes of arrest are respiratory, necessitating 5 rescue breaths to mitigate hypoxia first before checking for signs of circulation. After giving these 5 rescue breaths, the next step could be to check for signs of circulation, which could involve checking the femoral pulse, however, this is not necessary to decide whether chest compressions are necessary. As mentioned above, the updated guidelines state feeling for a pulse is an unreliable way to determine whether chest compressions should be initiated in both members of the general public and healthcare professionals.

Give 2 rescue breaths is incorrect. This is initially performed in adults in arrest, as the most likely cause of arrest in adults is cardiac. In children, the most likely cause of arrest is respiratory, necessitating 5 rescue breaths to mitigate hypoxia. Once chest compressions have started, 2 rescue breaths are given subsequently after every 15 chest compressions.

Start chest compressions at a ratio of 15:2 is incorrect. Although this is the correct ratio of chest compressions to rescue breaths, the first and most appropriate step in paediatric BLS is to give 5 rescue breaths, as the most common causes of arrest in children are respiratory.

Start chest compressions at a ratio of 30:2 is incorrect. This is the ratio of chest compressions to rescue breaths in adults. Due to the fact that the most common causes of arrest in children are respiratory, the ratio of chest compressions to rescue breaths is 15:2 instead.

Question:

A 37-year-old woman who is 11 weeks pregnant with twins presents with vomiting. She cannot keep anything down, is dizzy and tired, and is urinating less frequently.

Her past medical history includes hypothyroidism and irritable bowel syndrome. She smokes 5 cigarettes a day. The foetus was conceived via in-vitro fertilisation (IVF).

On examination, it is found that she has lost 3.2kg, with a pre-pregnancy weight of 64.3kg. Her blood results show the following:

Na+ 124 mmol/L (135 - 145)

K+ 3.2 mmol/L (3.5 - 5.0)

pH 7.46 (7.35-7.45)

What in this patient's history has increased the risk of her presentation?

A.Hypothyroidism

B.In-vitro fertilisation (IVF)

C.Irritable bowel syndrome (IBS)

D.Multiple pregnancy

E.Smoking

Answer:Multiple pregnancy

Explanation:

Multiple pregnancy is a risk factor for hyperemesis gravidarum

Important for meLess important

Multiple pregnancy is correct. This case involves a woman with hyperemesis gravidarum. She has severe vomiting and has become dehydrated, with a 5% pre-pregnancy weight loss and electrolyte imbalance. Risk factors for this include multiple pregnancy, hyperthyroidism, and molar pregnancy. She has twins so this is her main risk factor. This is because raised hormone human chorionic gonadotropin (HCG) is associated with more severe nausea and vomiting in pregnancy, and levels of HCG are higher in multiple pregnancies.

Hypothyroidism is incorrect. This is not a risk factor for hyperemesis gravidarum, but hyperthyroidism is.

In-vitro fertilisation (IVF) is incorrect. This is not itself associated with an increased risk of hyperemesis gravidarum, although it does indirectly increase risk due to the increased likelihood of multiple pregnancy.

Irritable bowel syndrome (IBS) is incorrect. It has no known association with hyperemesis gravidarum.

Smoking is incorrect. This is not a risk factor but rather known to reduce the incidence of hyperemesis gravidarum.

Question:

A 65-year-old farmer presents with rough red papules over his knuckles. This has developed over a number of weeks and he cannot identify a specific cause. He describes the rash as itchy and painful. Recently, he has had difficulty in work with heavy lifting and climbing up steps.

Which condition best explains this patient's symptoms?

A.Dermatomyositis

B.Psoriasis

C.Eczema

D.Polymyalgia rheumatica

E.Contact irritant dermatitis

Answer:Dermatomyositis

Explanation:

Gottron’s papules, roughened red papules over the knuckles mainly, are seen in dermatomyositis

Important for meLess important

Psoriasis often involves scaly plaques on extensor surfaces. It can be accompanied by arthritis.

Eczema often affects the face and trunk of infants and the flexor surfaces of older children. It would not account for his muscle weakness.

Polymyalgia rheumatica does not commonly have skin involvement.

Contact irritant dermatitis would not explain his muscle weakness and the specific distribution of the rash.

Question:

A patient presents with numbness and tingling along the ulnar border of his wrist and forearm. On examination you also note weak flexion of all the digits including the thumb.

What is the most likely diagnosis?

A.Compression of the ulnar at the wrist

B.Carpal tunnel syndrome

C.Compression of the ulnar nerve at the elbow

D.Cerebrovascular accident

E.C8 radiculopathy

Answer:C8 radiculopathy

Explanation:

Radiculopthy follows a dermatomal distribution, unlike named nerve pathology

Important for meLess important

The pattern of sensory loss cannot be explained by a single named nerve. The ulnar nerve supplies the ulnar border of the hand and the medial antebrachial cutaneous nerve (a branch of the brachial plexus) supplies the medial forearm. However, if we think in terms of dermatomes then C8 covers these areas.

Thumb flexion would not be affected in ulnar nerve lesions.

Carpal tunnel syndrome would affect flexion of the thumb only and would not produce this pattern of sensory loss.

Complete upper limb weakness or numbness would be expected with a cerebrovascular accident.

Question:

A 72-year-old woman attends the emergency department with a left-sided headache. It is localised to her left temple and it gets worse when moving her jaw. She has no changes in vision, and no focal neurological symptoms. She has a past medical history of polymyalgia rheumatica.

A temporal artery biopsy is being arranged to confirm the diagnosis.

What is the next most appropriate step in her management?

A.Analgesia only

B.Await results before prescribing treatment

C.Immediate IV methylprednisolone

D.Immediate oral dexamethasone

E.Immediate oral prednisolone

Answer:Immediate oral prednisolone

Explanation:

Glucocorticoids should be given once a diagnosis of temporal arteritis is suspected - don't wait for the temporal artery biopsy etc

Important for meLess important

This is a classical picture of temporal arthritis (giant cell arthritis). Patients often present with a temporal localised headache, with jaw claudication. Polymyalgia rheumatic has a strong association with temporal arteritis.

Temporal arteritis is a medical emergency and should be treated with a low index of clinical suspicion. The diagnosis is clear enough from the history, that immediate treatment should be given. Since there are no changes in vision, oral prednisolone is the recommended treatment.

Analgesia only is incorrect, as treatment must be given in temporal arteritis, in order to prevent serious complications. Analgesia will make up part of the overall management but is inappropriate as the sole management.

IV methylprednisolone is incorrect. There is no difference in efficacy between oral and IV steroids for uncomplicated temporal arteritis, and therefore it is best to go with the least invasive option. IV therapy is indicated if there are changes in vision, as it shows greater efficacy at preventing irreversible blindness, but here the vision is normal.

Awaiting the results of the biopsy is incorrect. This is not recommended as it could potentially delay treatment long enough that irreversible complications develop.

Oral dexamethasone is incorrect. It is much more potent and has a longer half-life. There are limited studies on the use of any other glucocorticoids, apart from prednisolone, for giant cell arteritis. Therefore, prednisolone is always offered first-line.

Question:

Which one of the following is not associated with thrombophilia?

A.Protein S deficiency

B.Antithrombin III deficiency

C.Protein C deficiency

D.Activated protein C resistance

E.von Willebrand's disease

Answer:von Willebrand's disease

Explanation:

Question:

A 28-year-old woman, para 2+ 0, has delivered a healthy baby. The third stage of labour was actively managed with Syntocinon, cord clamping, and controlled cord traction. The placenta was examined by the midwives and it appeared complete. She continues to bleed post-delivery and has lost an estimated 1,500 ml of blood. She does not have any past medical history. What is the first choice pharmacological management to arrest the bleeding?

A.Oral tranexamic acid

B.IM carboprost

C.Oral misoprostol

D.IV syntocinon

E.Rectal misoprostol

Answer:IV syntocinon

Explanation:

Medical treatments for postpartum haemorrhage secondary to uterine atony include oxytocin, ergometrine, carboprost and misoprostol

Important for meLess important

This patient meets the criteria for post-partum haemorrhage (PPH). Initially non-pharmacological methods are used such as bimanual uterine compression should be employed and a catheter inserted to ensure an empty bladder. RCOG guidelines then suggest to initially use Syntocinon 5 Units by slow IV injection. This should then be followed by ergometrine (contraindicated in hypertension) and then a Syntocinon infusion. Carboprost (contraindicated in asthma) and then misoprostol 1000 micrograms rectally are then recommended. If pharmacological management fails then surgical haemostasis should be initiated.

Always remember that management is initially ABCD in a major PPH. Fluids should be initiated while waiting for appropriate cross-matched blood.

Primary post-partum haemorrhage (PPH) is the loss of greater than 500 ml of blood within 24 hours of delivery. Minor PPH is a loss of 500-1000 ml of blood. Major PPH is over 1000 ml of blood.

The causes of a primary PPH can be divided into the 4 T's:

Tone - problems with uterine contraction

Tissue - retained products of conception

Trauma

Thrombin

The most common cause of primary PPH is due to uterine atony.

Question:

A 44-year-old obese female is noted to have gallstones during an abdominal ultrasound, which was requested due to repeated urinary tract infections. Apart from the repeated UTIs she is otherwise well. What is the most appropriate management of the gallstones?

A.Ursodeoxycholic acid

B.Extracorporeal Short Wave Lithotripsy

C.List for laparoscopic cholecystectomy when 50 years old

D.Observation

E.List now for laparoscopic cholecystectomy

Answer:Observation

Explanation:

Question:

A patient with type 2 diabetes mellitus is started on sitagliptin. What is the mechanism of action of sitagliptin?

A.Incretin inhibitor

B.Dipeptidyl peptidase-4 (DPP-4) inhibitor

C.Alpha-glucosidase inhibitor

D.Glucagon inhibitor

E.Glucagon-like peptide-1 (GLP-1) mimetic

Answer:Dipeptidyl peptidase-4 (DPP-4) inhibitor

Explanation:

Gliptins (DPP-4 inhibitors) reduce the peripheral breakdown of incretins such as GLP-1

Important for meLess important

Question:

A 28-year-old pregnant lady presents to the Emergency Department in a confused and agitated state. She is itching her arms vigorously and on examination, the patient complains of right side abdominal pain during palpation. As she tries to speak, the doctor notes her breath has a sweet, fecal smell. Which of the following is the most likely diagnosis?

A.Acute appendicitis

B.Ectopic pregnancy

C.Acute liver failure

D.Acute cholecystitis

E.Diverticulitis

Answer:Acute liver failure

Explanation:

Fetor hepaticus, sweet and fecal breath, is a sign of liver failure

Important for meLess important

The lady’s breath has a particular smell to it known as fetor hepaticus. This is a late sign of hepatic encephalopathy. The commonest cause of liver failure in the UK is paracetamol overdose.

1: incorrect. Acute appendicitis would present with right iliac fossa pain along with nausea and vomiting. It would not produce the sweet scent to the breath

2: This is unlikely as the patient has not had an episode of dark, scanty bleeding as commonly seen in an ectopic pregnancy. Additionally, it would not cause changes to the breath

4: This could produce similar symptoms of right sided pain and jaundice, however it is unlikely to cause the changes to the breath

5: Diverticulitis classically causes pain in the left lower quadrant and so is unlikely here

Question:

A 29-year-old woman presents to the Medical Admissions Unit with an eight-hour history of a headache. She has no significant past medical history, and confirms that she had chickenpox as a child.

On examination, she is markedly photophobic, and Kernig's sign is positive. Her chest is clear, heart sounds are normal, and there is no noticeable rash. Her observations are normal, asides from a low-grade pyrexia of 37.9ºC.

She undergoes a lumbar puncture, the results of which are as follows:

CSF appearance clear and colourless

WBC 500 cells/uL (90% lymphocytes) (0 - 5/uL)

Protein 0.8g/L (0.15-0.45g/L)

Glucose 3.8mmol/L (2.8-4.2mmol/L)

Opening pressure 15cm H20 (10-20cm H20)

Which of the following is the most likely causative organism for this presentation?

A.Mycobacterium tuberculosis

B.Neisseria meningitidis

C.Cryptococcus neoformans

D.Varicella zoster virus

E.Coxsackie B virus

Answer:Coxsackie B virus

Explanation:

The most common causes of viral meningitis in adults are enteroviruses

Important for meLess important

This patient has presented with classic signs and symptoms of meningitis - the key to elucidating the cause is an accurate interpretation of her CSF results. Her CSF results show a lymphocytosis with raised protein and normal glucose. Together, these are highly suggestive of viral meningitis. The normal opening pressure and clear CSF add further weight to this diagnosis. The most common causes of viral meningitis in adults with no other past medical history are enteroviruses, of which Coxsackie B virus is amongst the most common. Therefore, the best option here is Coxsackie B virus.

Tuberculous meningitis caused by Mycobacterium tuberculosis would also cause an elevated CSF protein count, and, later in the course of the illness, could result in CSF lymphocytosis. However, in tuberculous meningitis, one would expect low serum glucose, an elevated opening pressure, and more cloudy/turbid CSF.

Neisseria meningitidis is a common cause of bacterial meningitis in immunocompetent adults. The CSF findings are not characteristic of bacterial meningitis, where one would expect to see elevated polymorphs rather than a lymphocytosis, raised CSF protein and reduced CSF glucose, as well as a cloudy appearance to the fluid.

Cryptococcal meningitis is unlikely to occur in someone with no past medical history, and most frequently occurs in the context of prolonged immunosuppression such as HIV with reduced CD4 count. Cryptococcal meningitis would also tend to yield low CSF glucose and elevated opening pressure.

Viral meningitis can uncommonly be caused by varicella zoster virus (VZV), either in the context of primary infection or alongside reactivation of previously latent VZV. A classic zoster rash in a patient may point towards this diagnosis, though a large proportion of patients with VZV meningitis do not have any skin lesions. As such, the rationale for deeming coxsackie B infection more likely than VZV meningitis in this patient is purely epidemiological.

Question:

A 60-year-old gentleman with a background of lumbar spondylosis and chronic back pain presents with gradually worsening bilateral upper limb paraesthesias and leg stiffness. Which one of the investigations below is diagnostic for his likely condition?

A.Nerve conduction studies and EMG

B.MRI Cervical spine

C.MRI Lumbar Spine

D.CT C-spine

E.AP and lateral C-spine radiographs

Answer:MRI Cervical spine

Explanation:

The presence of upper limb neurological symptoms indicates that there is pathology either within his cervical spinal cord or brain. Brain disease is more likely to cause unilateral problems.

A MRI lumbar spine would therefore not provide a unifying diagnosis here.

In the context of known lumbar degenerative spine, degenerative cervical myelopathy is the number one differential for this presentation. An MRI of the cervical spine is the gold standard test where cervical myelopathy is suspected. It may reveal disc degeneration and ligament hypertrophy, with accompanying cord signal change. It is not uncommon for patients to suffer from tandem (cervical and lumbar) stenosis.

Other answers:

CT imaging is reserved for patients with contraindications to magnetic resonance imaging. A CT myelogram is the first line investigation in this case

Radiographs are not clinically useful in the workup of these patients, though osteoarthritic changes (e.g. osteophytes) can be visible if they are performed.

Other investigatons (e.g. nerve conduction studies, EMG) may be performed when the clinical picture is unclear. These can help to exclude mononeuropathies and other lower motor neuron disorders. However, where there is strong clinical suspicion and the diagnosis is suspected, an MRI of the cervical spine should be performed.

Question:

A 55-year-old man is admitted to the wards with acute pancreatitis for which he is receiving supportive care and prophylactic dalteparin injections. He becomes breathless on day 3 of his stay. A chest X-ray is performed which shows bilateral alveolar shadowing with a normal cardiothoracic index. His observations are taken, and while his temperature is found to be 36.5ºC his respiratory rate is 24/min.

Given this man's presentation what is the most likely diagnosis?

A.Heart failure

B.Pancreatic pseudo-cyst

C.Pulmonary embolism

D.Pancreatic abscess

E.Acute respiratory distress syndrome

Answer:Acute respiratory distress syndrome

Explanation:

Acute respiratory distress syndrome is a complication of acute pancreatitis

Important for meLess important

This question is asking about a man on a ward suffering from acute pancreatitis. Given his presentation of acute breathlessness following this acute injury, the most likely diagnosis is acute respiratory distress syndrome, especially given the chest X-ray findings.

Heart failure could account for his breathlessness and his chest X-ray findings, however, would have an enlarged heart on the chest X-ray as well.

Pancreatic pseudo-cyst is a complication of pancreatitis. It is a collection of pus adjacent to the pancreas, and occurs roughly 4 weeks after acute pancreatitis, thus this is too soon.

if this patient was septic and breathless as the result of a pancreatic abscess, you would expect a fever and not a normal temperature.

While this patient symptoms could be explained by a pulmonary embolism, the chances of this occurring while he is on dalteparin injections are very unlikely.

Question:

A 45-year-old man presents with symptoms of urinary colic. In the history he has suffered from recurrent episodes of frank haematuria over the past week or so. On examination he has a left loin mass and a varicocele. The most likely diagnosis is:

A.Renal adenocarcinoma

B.Renal cortical adenoma

C.Squamous cell carcinoma of the renal pelvis

D.Retroperitoneal fibrosis

E.Nephroblastoma

Answer:Renal adenocarcinoma

Explanation:

Renal adenocarcinoma are the most common renal malignancy and account for 75% cases.

Patients may develop frank haematuria and have episodes of clot colic.

A Grawitz tumour is an eponymous name for Renal Adenocarcinoma.

May metastasise to bone.

Question:

A 7-year-old girl presents with diarrhoea for the past 10 days. She is found to be clinically dehydrated on examination. Investigations reveal hypernatraemia. Which of the following signs are you most likely to find on examination?

A.Jittery movements

B.Hyporeflexia

C.Decreased muscle tone

D.Hypertension

E.Nausea

Answer:Jittery movements

Explanation:

Features suggestive of hypernatraemic dehydration:

jittery movements

increased muscle tone

hyperreflexia

convulsions

drowsiness or coma

Source: https:www.nice.org.uk/guidance/cg84/chapter/1-Guidance

Question:

A 16-year-old, who has recently immigrated from South Asia presents to her GP with pales blotches on her arm.

On examination, there are a few large hypopigmented lesions on her left arm. There is loss of sensation to fine touch over the lesion. She is systemically well.

Which of the following is compatible with the above findings?

A.Leprosy

B.Addison's disease

C.Vitiligo

D.Diabetes mellitus

E.Pityriasis versicolor

Answer:Leprosy

Explanation:

Leprosy leads to skin hypopigmentation

Important for meLess important

Leprosy is the correct answer - it is the only option which causes depigmentation and loss of sensation.

Addison's - causes hyperpigmentation.

Vitiligo - causes hypopigmentation without sensory loss.

Diabetes - does cause a sensory neuropathy but this is normally a length-dependent polyneuropathy - and does not cause hypopigmentation in these areas.

Pityriasis versicolor - hypopigmentation without sensory loss.

Question:

The ward doctor is asked to review a 12-hour-old neonate, born at 34 weeks gestation to a healthy mother during an otherwise-uncomplicated vaginal delivery. On examination, the neonate looks comfortable. A continuous 'machinery-like' murmur is noted on auscultation of the heart, as well as a left-sided thrill. The apex beat appears to be heaving on palpation. A widened pulse pressure is noted. There is no visible cyanosis. An echocardiogram is subsequently performed which confirms the diagnosis, and rules out any other cardiac problems.

Given the likely diagnosis, what is the most appropriate management at this stage?

A.Indomethacin given to the neonate

B.Percutaneous intervention

C.Refer for elective surgery

D.Refer for urgent surgery

E.Prostaglandin E1 given to the neonate

Answer:Indomethacin given to the neonate

Explanation:

Patent ductus arteriosus: indomethacin is given to the neonate in the postnatal period, not to the mother in the antenatal period

Important for meLess important

The likely diagnosis here, given the findings, is that of patent ductus arteriosus (PDA). The correct answer is therefore giving indomethacin to the neonate, as this prompts duct closure in the majority of cases.

The echocardiogram ruled out other defects - however, if another defect was present, it may be preferable to use prostaglandin E1 to keep the duct open until after surgical repair.

At this stage, referral for surgery is thus unwarranted.

Percutaneous closure may be used for duct closure in older children, to avoid surgery. However, this would not be suitable in a neonate.

Question:

A 23-year-old man wakes up on a Sunday morning unable to extend his wrist . He had been drinking heavily the previous night. What is the likely cause of his weakness?

A.Wernicke's encephalopathy

B.Radial nerve palsy

C.Subacute combined degeneration of the cord

D.Acute B12 deficiency

E.Ulnar nerve palsy

Answer:Radial nerve palsy

Explanation:

This man has 'Saturday night palsy' caused by compression of the radial nerve against the humeral shaft, possibly due to sleeping on a hard chair with his hand draped over the back

Question:

A 22-year-old female presents with polyarticular arthralgia and a malar rash. Blood tests results are as follows:

Hb 135 g/l

Platelets 110 \* 109/l

WBC 2.8 \* 109/l

What is the most appropriate test from the options below?

A.Anti-CCP (cyclic citrullinated peptide) antibody

B.ANCA (anti-neutrophil cytoplasmic antibody)

C.Anti-dsDNA antibody

D.Anti-Jo1

E.Anti-Ro / Anti-La antibodies

Answer:Anti-dsDNA antibody

Explanation:

The clinical features and laboratory results are suggestive of systemic lupus erythematosus (SLE). A positive anti-dsDNA antibody can assist in making the diagnosis.

Question:

A 33-year-old woman who is 34 weeks pregnant with twins presents to you with a 3-day history of intense pruritis which has been affecting her sleep. You can see multiple excoriations but no obvious skin rash. Other than this the pregnancy has been going well, and foetal movements are normal.

Bloods are taken:

Bilirubin 41 µmol/L (3 - 17)

ALP 213 u/L (30 - 100)

ALT 189 u/L (3 - 40)

An abdominal ultrasound was normal.

Based on the likely diagnosis, what is the most likely management plan?

A.Admit and commence cardiotocography (CTG) monitoring

B.Advise she will likely need a caesarian section

C.Offer reassurance and prescribe chlorphenamine

D.Plan for immediate delivery

E.Plan to induce labour at 37 weeks

Answer:Plan to induce labour at 37 weeks

Explanation:

Intrahepatic cholestasis of pregnancy increases the risk of stillbirth; therefore induction of labour is generally offered at 37-38 weeks gestation

Important for meLess important

This woman has intrahepatic cholestasis of pregnancy. It is characterised by abnormal LFTs and intense pruritis, usually in the third trimester. The important thing to remember is that there are increased risks associated with this condition, including foetal distress and intrauterine death, and maternal morbidity. These risks go up after 37 weeks gestation, and therefore induction of labour should be considered at this point. This is more likely to be the case in women with higher levels of transaminases and bile acids, such as in this patient. Multiple pregnancy is a risk factor.

Although increased foetal surveillance is recommended, she would not need to be admitted at this stage unless there was evidence of immediate concern for the foetus.

In this question, there is no evidence that a caesarian section is necessary. Usually, in this condition a vaginal birth is suitable - caesarian section is rarely needed, however according to BMJ Best Practice is sometimes necessary for those with non-reassuring foetal status, which is not the case here.

Although antihistamines can be used for symptomatic relief in this condition, reassurance and antihistamines would not be enough on its own because of the risks involved with this condition. Other options for symptom relief include ursodeoxycholic acid, colestyramine and topical emollients.

There is nothing in this scenario to imply immediate delivery is required. The foetal movements are normal and the ultrasound was normal.

Question:

A 12-year-old boy presents to clinic complaining of having to urinate more frequently. Upon assessment you decide to investigate for type 1 diabetes mellitus. Which of the following would most likely support this diagnosis?

A.Weight gain

B.Family history of type 2 diabetes mellitus

C.Excessive tiredness

D.Black or Asian family origin

E.Evidence of acanthosis nigricans

Answer:Excessive tiredness

Explanation:

Weight loss is associated with type 1 diabetes mellitus. Genetic factors such as family history and racial origin are more associated with type 2 diabetes mellitus. Acanthosis nigricans is a sign of insulin resistance, also associated with type 2 diabetes mellitus.

Source: https:www.nice.org.uk/guidance/ng18/chapter/1-Recommendations#diagnosis

Question:

A 72-year-old man presents to the emergency department with feeling generally unwell and lethargic for the past 2 weeks. His only other symptom is a yellow-green tinge to his vision.

He has a past medical history significant for atrial fibrillation, depression and a myocardial infarction 3 years ago. He takes numerous tablets that come in a blister pack and he doesn't know the names of them.

A blood test taken shows the following:

Digoxin concentration 3 mcg/l (<1 mcg/l)

What drug may have precipitated this clinical picture?

A.Bendroflumethiazide

B.Citalopram

C.Isosorbide mononitrate

D.Ramipril

E.Simvastatin

Answer:Bendroflumethiazide

Explanation:

Thiazides may cause precipitation of digoxin toxicity

Important for meLess important

This man presents with a picture of chronic digoxin toxicity. Digoxin inhibits Na+/K+ ATPase to cause its rhythm control effects for atrial fibrillation. Since Na+/K+ ATPase is found in tissues throughout the body, the symptoms of its toxicity tend to be incredibly vague. The most common presentation is with gastrointestinal upset or with general weakness of fatigue. A fairly specific symptom is xanthopsia, which is a colour vision deficiency in which there is a tinge of yellow-green in vision. This occurs due to the effects of Na+/K+ ATPase causing yellowing of the optic media, and also disrupting the photoreceptors of the retina.

Bendroflumethiazide is a drug that can precipitate digoxin toxicity. It causes hypokalaemia, and since potassium is a competitive inhibitor of digoxin, less potassium means digoxin can have more of an effect on Na+/K+ ATPase.

Citalopram is incorrect. There is no evidence that citalopram has any effect on the pharmacokinetic profile of digoxin.

Isosorbide mononitrate is incorrect. Used together, there may be a slight increase in the risk of bradycardia, but there is nothing to suggest isosorbide mononitrate precipitates toxicity.

Ramipril is incorrect. There is some limited evidence that digoxin may slightly prevent ramipril from having its desired blood pressure-lowering effect, however, there is no evidence that it affects digoxin toxicity.

Simvastatin is incorrect. Simvastatin is entirely safe to use with digoxin and is not known to precipitate digoxin toxicity. There is limited evidence that atorvastatin may precipitate toxicity, but the mechanism of this is unclear.

Question:

A 68-year-old man with a past history of aortic stenosis is reviewed in clinic. Which one of the following features would most guide the timing of surgery?

A.Symptomatology of patient

B.Aortic valve gradient of 36 mmHg

C.Pulse pressure

D.Loudness of murmur

E.Left ventricular ejection fraction

Answer:Symptomatology of patient

Explanation:

Aortic stenosis management: AVR if symptomatic, otherwise cut-off is gradient of 40 mmHg

Important for meLess important

Question:

A 45-year-old man presents to the emergency department with acute shortness of breath. This has been ongoing for the last hour and progressively worsening. On examination he has hyper-resonance and absent breath sounds on his right-hand side and his trachea has deviated to the left. His blood pressure has now fallen to 85/60 mmHg.

What is the most appropriate next step in the management of this patient?

A.Insert a a 14G cannula into the second intercostal space

B.Order a portable chest X-ray to confirm the diagnosis and then insert a a 14G cannula into the second intercostal space

C.Insert a chest drain

D.Insert a a18G cannula into the second intercostal space

E.Order a portable chest X-ray to confirm the diagnosis and then insert a a 18G cannula into the second intercostal space

Answer:Insert a a 14G cannula into the second intercostal space

Explanation:

A tension pneumothorax should not be investigated if suspected but should be immediately decompressed with a needle

Important for meLess important

This question is asking about a man presenting with symptoms and signs of a tension pneumothorax. He has shortness of breath, reduced breath sounds on one side, a deviated trachea and hyper-resonance on percussion, all classical signs.

You can help to differentiate this from a simple pneumothorax due to the deviated trachea and the systemic features such as low blood pressure and worsening shortness of breath.

The correct immediate management of a tension pneumothorax is immediate needle decompression of the second intercostal space, midclavicular line. It is also best to aim for the top of the third rib as neurovascular structures run at the bottom of the ribs. Investigations should not be ordered if the diagnosis is obvious as this will only allow time for the patient to go into arrest. Therefore option 1 is correct.

Option 2 is incorrect as it wastes time performing an X-ray to confirm the diagnosis.

Option 3 is incorrect as a chest drain is only inserted after immediate decompression with a needle in tension pneumothorax.

Options 4 and 5 are both incorrect as they do not decompress the pneumothorax.

Question:

A 42-year-old woman presents to her GP with ongoing upper abdominal pain and acid-reflux; she noticed it 6 months ago when she started work as a teaching assistant in a new school. She has tried omeprazole 20mg once daily which was increased to a double dose of 40mg twice daily. Despite this, her symptoms have not resolved. She denies any unplanned weight loss, nausea, difficulty swallowing, haematemesis, or change in bowel habits.

What is the most appropriate next step for this patient?

A.Non-urgent endoscopy

B.Test and treat for H. pylori

C.Trial of alternative full-dose proton-pump inhibitor

D.Trial of low dose prednisolone

E.Urgent endoscopy

Answer:Test and treat for H. pylori

Explanation:

When treating dyspepsia, if either a PPI or 'test and treat' approach has failed then the other approach should be tried next

Important for meLess important

This patient has been managed per NICE guidelines with full-dose proton-pump inhibitors. While patient guidance does not advocate stepping up onto double-dose PPI, this does happen commonly in clinical practice (as seen with this patient). As this has failed, they should have test and treat for H. pylori as this is another likely cause of dyspepsia in patients with no urgent or non-urgent referral criteria. She does not meet any of the criteria for urgent endoscopy (which include dysphagia or an upper abdominal mass).

The patient should be referred for a non-urgent endoscopy if they meet certain criteria highlighted by NICE. Due to her age (below 55 years), she would only be referred for non-urgent endoscopy if she was also experiencing haematemesis.

Trial of an alternative full-dose proton-pump inhibitor would be incorrect as her symptoms are ongoing despite being managed with a full-dose and double-dose regime of omeprazole. This indicates that the issue may not be an overproduction of gastric acid, but may be due to infection with H. pylori.

Trial of low dose prednisolone is an inappropriate answer as steroids have no role in the management of dyspepsia. Steroids are one of the common drugs that cause acid reflux, heartburn, and indigestion symptoms. Patients are advised to take them with food to avoid these symptoms.

Urgent endoscopy would be undertaken if this patient was presenting with dysphagia or an upper abdominal mass as these are sensitive symptoms that may indicate malignancy.

Question:

A 88-year-old woman is referred to the memory clinic for assessment after her family report that she has become gradually more forgetful over the past few months. Her Mini Mental State Examination (MMSE) score is 15/30.

The consultant asks you to start her on an acetylcholinesterase inhibitor.

Which of the following medications would you start?

A.Donepezil

B.Memantine

C.Oxybutynin

D.Rotigotine

E.Tolterodine

Answer:Donepezil

Explanation:

Donepezil - acetylcholinesterase inhibitor

Important for meLess important

Donepezil is an acetylcholinesterase inhibitor, which along with with galantamine and rivastigmine, are first line for management of mild to moderate Alzheimer's dementia.

Memantine is an NMDA receptor antagonist, used as a 2nd line or 'add on' treatment for mild-moderate Alzheimer's dementia. It may be used 1st line in severe Alzheimer's.

Oxybutynin and tolterodine are anti-muscarinic medications used in the treatment of urge incontinence. Immediate release oxybutynin should, however, be avoided in 'frail older women' according to NICE.

Rotigotine is a dopamine agonist used in the treatment of Parkinson's disease and restless legs syndrome.

Question:

A 70-year-old woman with severe central chest pain is brought into the Emergency Department by ambulance. She recounts that this pain came on suddenly, and feels it has 'moved' in the last 30 minutes. She describes the pain as a 'tearing' sensation, radiating through to the back. She has a past medical history of poorly controlled hypertension and is a smoker. On examination, she looks unwell, tachypnoeic, and feels clammy to touch. An ECG shows sinus tachycardia. Cardiac troponins are within normal ranges.

Given the likely diagnosis, which further examination sign may be present?

A.Systolic murmur best heard in the aortic region

B.Weak brachial pulse

C.Systolic murmur best heard in the 5th intercostal space

D.Janeway lesions

E.Malar flush

Answer:Weak brachial pulse

Explanation:

In aortic dissection, a pulse deficit may be seen:

weak or absent carotid, brachial, or femoral pulse

variation in arm BP

Important for meLess important

The correct answer is a weak pulse. In aortic dissections, a pulse deficit is often seen which will manifest as a weak pulse or arm BP variation.

A systolic murmur heard best in the aortic region may be consistent with aortic stenosis. An ascending aortic dissection may cause aortic regurgitation, not stenosis.

A systolic murmur heard best in the 5th intercostal space is most consistent with mitral regurgitation. This is not typically caused by dissections, but may be caused by papillary muscle rupture secondary to myocardial infarction.

Janeway lesions are a feature of infective endocarditis - not of aortic dissection.

A malar flush may appear with pulmonary hypertension - again, not with aortic dissection.

Question:

A 32-year-old primigravida at 37 weeks attends the antenatal unit complaining of abdominal pain which is worse on the right side. She has also been vomiting. Her blood pressure is 148/97 mmHg. She denies any abnormal discharge and reports that fetal movements are still present. Her blood results are shown below.

Hb 93 g/l

Platelets 89 \* 109/l

WBC 9.0 \* 109/l

Urate 0.49 mmol/l

Bilirubin 32 µmol/l

ALP 203 u/l

ALT 190 u/l

AST 233 u/l

What is the most likely diagnosis?

A.HELLP syndrome

B.Obstetric cholestasis

C.Acute fatty liver

D.Hyperemesis gravidarum

E.Gout

Answer:HELLP syndrome

Explanation:

The most likely diagnosis here is HELLP syndrome (haemolysis, elevated liver enzymes and low platelets), a serious manifestation of pre-eclampsia. The clinical features of hypertension, vomiting and abdominal pain support the diagnosis but are not pre-requisites. The abdominal pain here may be a sign of liver inflammation and resulting stretch of the liver capsule.

Obstetric cholestasis is associated with intense pruritus and the most sensitive marker is a rise in serum bile acids. Acute fatty liver is another serious condition, which also has associations with pre-eclampsia. It would typically cause greater elevations in liver enzymes and a deep jaundice. Hyperuricaemia may be a useful marker of pre-eclampsia and does not necessarily indicate an attack of gout. Urate is thought to rise due to diminished kidney function and reduced clearance. Hyperemesis gravidarum should be a diagnosis of exclusion and would be unlikely to present for the first time this late into pregnancy.

Question:

A 25-year-old man presents to the cardiology clinic. He remembers his mother telling him he had a 'heart murmur' in childhood, but never had any operations or further investigations performed as they moved around a lot. He now feels increasingly fatigued and breathless, especially when he exercises. On examination, an audible ejection systolic murmur, which is louder on inspiration is heard. There is no finger clubbing.

What is the most likely diagnosis?

A.Atrial septal defect

B.Mitral regurgitation

C.Mitral valve prolapse

D.Still's murmur

E.Tetralogy of Fallot

Answer:Atrial septal defect

Explanation:

Atrial septal defect - ejection systolic murmur louder on inspiration

Important for meLess important

Many atrial septal defects (ASD) are asymptomatic in childhood, and only progress to give symptoms if they remain untreated to adulthood, as in this vignette. The typical murmur of ASD is also described in this vignette; an ejection systolic murmur louder on inspiration.

Mitral regurgitation gives a pansystolic murmur, rather than an ejection systolic murmur and is louder on expiration rather than inspiration.

Mitral valve prolapse is midsystolic rather than ejection systolic and is louder on expiration rather than inspiration.

A Still's murmur, also known as an 'innocent murmur' or 'vibratory murmur' is a common quiet systolic murmur heard in young children. Unlike in this vignette, Still's murmur do not progress to give symptoms and generally cannot be heard into adulthood.

Tetralogy of Fallot would have presented with cyanosis in early childhood, whereas this patient has only developed symptoms in adulthood.

Question:

A 24-year-old man is investigated for chronic back pain. Which one of the following would most suggest a diagnosis of ankylosing spondylitis?

A.Reduced lateral flexion of the lumbar spine

B.Pain gets worse during the day

C.Accentuated lumbar lordosis

D.Pain on straight leg raising

E.Loss of thoracic kyphosis

Answer:Reduced lateral flexion of the lumbar spine

Explanation:

Reduced lateral flexion of the lumbar spine is one of the earliest signs of ankylosing spondylitis. There tends to be a loss of lumbar lordosis and an accentuated thoracic kyphosis in patients with ankylosing spondylitis

Question:

A 65-year-old man presents to the GP complaining of recurrent cough for the past 6 months. Further questioning reveals exertional breathlessness on walking upstairs and some weight loss. He has no past medical history of note. He has never smoked but worked as a miner 25 years ago.

Examination of the chest is normal. Chest X-ray reveals egg-shell calcification of the hilar nodes and increased lung markings in the upper lobe bilaterally.

What is the most likely diagnosis?

A.Asbestosis

B.Idiopathic pulmonary fibrosis

C.Lung cancer

D.Silicosis

E.Tuberculosis

Answer:Silicosis

Explanation:

Mining occupation, upper zone fibrosis, egg-shell calcification of hilar nodes → ? silicosis

Important for meLess important

The correct answer is silicosis. This patient is presenting with a persistent cough and increasing exertional dyspnoea. Combined with the history of mining occupation, egg-shell calcification of the hilar lymph nodes and upper zone fibrosis, this is a classic clinical picture of silicosis.

Asbestosis is incorrect. This patient is presenting with a clinical picture of silicosis. Asbestosis can be found in coal miners and other patients with occupational exposure (builders etc.), especially from countries with less strict regulations on asbestos use. Asbestosis will also present with increasing breathlessness, however, chest X-ray classically shows lower zone fibrosis and pleural thickening, and there is not commonly hilar calcification.

Lung cancer is incorrect. This patient is presenting with a clinical picture of silicosis. Lung cancer can present with a cough and weight loss, but classically other symptoms such as haemoptysis are present. Although this patient doesn't smoke, silica exposure is a risk factor for both silicosis and lung cancer. However, this patient's chest X-ray is not characteristic of lung cancer, as this generally shows a mass with no fibrosis or hilar calcification. Therefore another diagnosis such as silicosis is more likely.

Tuberculosis is incorrect. This patient is presenting with a clinical picture of silicosis. Tuberculosis is an important differential to consider in this case. Tuberculosis typically presents with haemoptysis and weight loss. Examination classically reveals some crackles. Chest X-ray classically reveals consolidation in the upper zones, not fibrosis. There may or may not be hilar involvement in tuberculosis, however, it would be unusual to see changes in both lungs in tuberculosis. The history of mining work would point toward a diagnosis of silicosis.

Question:

A 25-year-old woman presents to the GP with recurrent headaches. Each episode lasts 8 hours and is characterised by unilateral left-sided pulsatile pain. She finds that bright lights and loud sounds make the pain worse, and lying in a dark room helps. There are no fevers, or neck stiffness, and the pain does not change with posture. She has no other medical conditions. Her grandmother suffers from asthma. She does not smoke or drink alcohol.

What is the most appropriate medication she should be prescribed to reduce the frequency of her headaches?

A.Diclofenac

B.Propranolol

C.Sumatriptan

D.Topiramate

E.Verapamil

Answer:Propranolol

Explanation:

Propranolol is preferable to topiramate in women of childbearing age (i.e. the majority of women with migraine)

Important for meLess important

Propranolol is correct. This patient has signs and symptoms consistent with migraine (recurrent episodes of throbbing unilateral 4-27 hour-long headaches with photophobia and phonophobia). Patients with migraine are offered either propranolol or topiramate for the prophylaxis of future episodes. As this patient is a woman of childbearing age, topiramate should not be prescribed as it is teratogenic. Her grandmother having asthma does not mean she does as well and the question states she has no other medical history, meaning propranolol can still be given.

Diclofenac is incorrect. This is used in the management of an acute migraine alongside a triptan (e.g. sumatriptan), not for prophylaxis.

Sumatriptan is incorrect. This is used in the management of an acute migraine, not for prophylaxis.

Topiramate is incorrect. As this patient is a woman of childbearing age, topiramate should not be prescribed as it is teratogenic. Her grandmother having asthma does not mean she does as well and the question states she has no other medical history, meaning propranolol can still be given.

Verapamil is incorrect. This is given to patients with cluster headaches as a form of prophylaxis, not migraine.

Question:

A 65-year-old man attends his GP with a 4-month history of frequency, urgency and weak stream. Urinalysis is positive for blood. A multiparametric MRI is arranged and confirms that the patient has prostate cancer. He is started on the GnRH agonist goserelin and the anti-androgen, cyproterone acetate. He is counselled on the importance of taking cyproterone acetate.

What is the purpose of cyproterone acetate?

A.Directly reducing the growth of prostate cancer

B.Increase luteinizing hormone secretion

C.Increase testosterone levels

D.Prevent paradoxical increase in symptoms with GnRH agonists

E.Reduce dose of GnRH agonists required for the intended effect

Answer:Prevent paradoxical increase in symptoms with GnRH agonists

Explanation:

Prostate cancer: GnRH agonists may cause 'tumour flare' when started, resulting in bone pain, bladder obstruction and other symptoms

Important for meLess important

Prevent paradoxical increase in symptoms with GnRH agonists is correct. Initially, treatment of prostate cancer with GnRH agonists can cause a paradoxical increase in symptoms such as bone pain, bladder obstruction and other symptoms, this is referred to as a 'tumour flare'. This occurs because GnRH temporarily causes the pituitary to increase luteinizing hormone (LH) secretion before it begins to inhibit LH release. The increase in LH causes increased stimulation of Leydig cells in the testicles which in turn produce more testosterone. Testosterone stimulates the survival and growth of prostate cancer. Therefore the initial increase in production of testosterone caused by GnRH agonists can cause paradoxical survival, growth and resultant symptoms of prostate cancer. Anti-androgens act by blocking androgen receptors which prevent androgens such as testosterone from binding their receptors and suppressing luteinizing hormone, which in turn reduces testosterone levels.

Directly reducing the growth of prostate cancer is incorrect. Anti-androgens, such as cyproterone acetate and flutamide do not directly influence tumour growth rate; however, they do act indirectly by preventing 'tumour flare'.

Increase luteinizing hormone secretion is incorrect. Anti-androgens reduce luteinizing hormone secretion.

Increase testosterone levels is incorrect. Anti-androgens decrease the initial increase in testosterone associated with 'tumour flare'.

Reduce dose of GnRH agonists required for the intended effect is incorrect. The dose of GnRH agonists, such as goserelin, required to treat prostate cancer is not influenced by concurrent use of anti-androgens.

Question:

A 63-year-old man undergoes a subtotal colectomy and iatrogenic injury to both ureters is sustained. He develops renal failure and his serum potassium is found to be elevated at 6.9 mmol/L. An ECG is performed, what is the most likely finding?

A.Increased PR interval

B.Prominent U waves

C.Narrow QRS complexes

D.Peaked T waves

E.Low ST segments

Answer:Peaked T waves

Explanation:

Peaked T waves are the first and most common finding in hyperkalaemia.

Question:

A 23-year-old male swimmer presents to his GP with left ear pain, discharge, and mild hearing loss for the past two days. Otoscopy reveals swollen external auditory meatus and normal appearance of the tympanic membrane.

What is the first line treatment for his condition?

A.Oral ciprofloxacin

B.Oral amoxicillin

C.Topical chloramphenicol

D.Topical ciprofloxacin + dexamethasone

E.Watch and wait

Answer:Topical ciprofloxacin + dexamethasone

Explanation:

Topical antibiotics with or without steroid are first line treatment in otitis externa

Important for meLess important

Chloramphenicol ear drops are rarely used in practice. They can cause delayed hypersensitivity reactions.

Ciprofloxacin and dexamethasone is a suitable combination of antibiotic and steroid that will treat this otitis externa.

Oral ciprofloxacin may be used in cases of refractory otitis media or in patients with immunocompromise.

Oral amoxicillin may be used in the treatment of acute otitis media.

Question:

A 27-year-old nulliparous woman presents to the labour suite at 41+1 weeks gestation. Throughout the pregnancy, she has stated that she wants to deliver the baby vaginally if possible. On examination of the cervix, it is found to be located in an intermediate position with a firm consistency. Cervical effacement is estimated to be at around 30% and the cervical dilatation is less than 1cm. The fetal head is felt at the level of the ischial spines. Her bishop score is 3/10. The midwife has performed a membrane sweep already.

What should your next step in management be?

A.Book for emergency caesarean section

B.Vaginal prostaglandin E2

C.Maternal oxytocin infusion

D.Amniotomy

E.Cervical ripening balloon

Answer:Vaginal prostaglandin E2

Explanation:

Vaginal PGE2 or oral misoprostol is the preferred method of induction of labour if the Bishop score is ≤ 6

Important for meLess important

Vaginal prostaglandin E2 (PGE2) is the preferred method of induction of labour. It can be administered as a gel, tablet, or controlled-release pessary. Women undergoing vaginal PGE2 should be counselled on the associated risk of uterine hyperstimulation.

Emergency caesarean section is not required as of yet as this woman has not undergone induction of labour. It may be considered if all methods of induction fail, however, this woman wants to give birth vaginally so this should be taken into consideration and other options should be attempted first.

Maternal oxytocin infusion is not the first-line management option and NICE guidelines state that it should not be used alone. After administering vaginal PGE2 the cervix should be reassessed at 6 hours before considering oxytocin infusion. When used it can increase the pain felt from contractions and so additional analgesia is recommended.

Amniotomy alone, should not be used as the primary method for induction of labour. It can be considered in patients who are considered high risk for uterine hyperstimulation, where vaginal PGE2 would not be appropriate. Amniotomy is offered when the cervix is considered 'ripe' (bishop score ≥7) and may be used in combination with an oxytocin infusion.

A cervical ripening balloon is when a balloon catheter is passed into the endocervical canal before being gently inflated, this puts pressure on the internal cervical os causing local release of prostaglandins and oxytocin. It should not be used as the primary method for induction of labour. This procedure can be painful for the woman, may cause some vaginal bleeding and as with all procedures involving inserting something into the vagina has an increased risk of infection.

Question:

A 55-year-old woman presents with severe abdominal pain to the Emergency Department. An abdominal film is taken:

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Other than small bowel obstruction, what other finding is shown?

A.Osteoporosis

B.Intussception

C.Free air in the abdomen

D.Sigmoid volvulus

E.Air in the biliary tree

Answer:Free air in the abdomen

Explanation:

Rigler's sign (double wall sign) is demonstrated in this film, suggesting the presence of free air in the abdomen.

Question:

A 66-year-old man is being treated in the hospital for a myocardial infarction. In the last 8 hours, his urine output has dropped from 52ml/hr to 25ml/hr. He weighs 89kg. His blood results from his admission and currently are below:

Admission blood tests show:

Na+ 139 mmol/L (135 - 145)

K+ 4.5 mmol/L (3.5 - 5.0)

Bicarbonate 25 mmol/L (22 - 29)

Urea 5.6 mmol/L (2.0 - 7.0)

Creatinine 113 µmol/L (55 - 120)

eGFR 62 ml/min/1.73 m2 (>60)

Recent blood tests show:

Na+ 135 mmol/L (135 - 145)

K+ 5.7 mmol/L (3.5 - 5.0)

Bicarbonate 23 mmol/L (22 - 29)

Urea 8.2 mmol/L (2.0 - 7.0)

Creatinine 130 µmol/L (55 - 120)

eGFR 52 ml/min/1.73 m2 (>60)

What factor qualifies this patient as having an acute kidney injury (AKI)?

A.EGFR

B.Hyperkalaemia

C.Serum creatinine

D.Serum urea

E.Urine output

Answer:Urine output

Explanation:

Urine output of < 0.5 ml/kg/hr over 6 consecutive hours constitutes an acute kidney injury

Important for meLess important

The correct answer is urine output. This patient is suffering from a pre-renal AKI due to a collapse in cardiovascular function. His urine output has dropped below 0.5ml/kg/hr for >6hrs, which qualifies him as having an acute kidney injury (AKI). He doesn't meet the AKI threshold in the other factors that can be used to diagnose AKI.

eGFR is incorrect here. This patient has seen a fall in his eGFR of 10 ml/min/1.73 m2. Whilst NICE doesn't recommend the use of GFR to diagnose AKI, some diagnostic criteria allow for AKI diagnosis with a >25% decrease in GFR. In this patient the eGFR fall is not large enough to meet this threshold, however, a diagnosis of an AKI can still be achieved due to the fall in urine output.

Hyperkalaemia is incorrect. Whilst hyperkalaemia is one of the most important complications of an AKI, it can occur for other reasons, so hyperkalaemia is not enough to diagnose AKI. This patient however is in AKI, as his urine output has fallen below the diagnostic threshold.

Serum creatinine is incorrect. This patient has seen an increase in his creatinine over the course of his admission. However, the threshold for AKI diagnosis is a rise of over 26 µmol/L or >50%. This patient only has a rise of 17, which does not meet this threshold. He however still has an AKI due to the reduced urine output mentioned above.

Serum urea is incorrect. A raised serum urea is a common finding in AKI. However, it is not recognised as a diagnostic criterion for AKI. This patient however is still in AKI as his reduced urine output has reached the diagnostic threshold.

Question:

A 35-year-old man presents to the medical admissions unit with a painful, swollen right lower leg. He has a past medical history of primary focal segmental glomerulosclerosis, for which he takes prednisolone and mycophenolate mofetil. He works in the IT industry. There is no significant family history.

On examination, the is mild generalized oedema. However, his right lower limb is significantly swollen compared to the left and is erythematous and tender to touch.

A doppler ultrasound scan of the right lower limb demonstrates evidence of deep vein thrombosis.

Given the clinical history, what is the likely underlying cause for the patient's condition?

A.Antithrombin III deficiency

B.Factor V Leiden mutation

C.Protein C deficiency

D.Protein S deficiency

E.Prothrombin gene mutation

Answer:Antithrombin III deficiency

Explanation:

Nephrotic syndrome is associated with a hypercoagulable state due to loss of antithrombin III via the kidneys

Important for meLess important

Antithrombin III deficiency is correct. This is a protease that inhibits coagulation by inhibiting the enzymatic activity of thrombin. Antithrombin II deficiency can be inherited or acquired. The patient has nephrotic syndrome, which is associated with a loss of antithrombin III from the kidneys resulting in an acquired deficiency and a hypercoagulable state and thus puts this patient at risk of the development of deep vein thrombosis.

Factor V Leiden mutation is incorrect. This is the most common inherited disorder causing thrombosis. However, given that we have a clear reason to have an acquired thrombosis, this is less likely.

Protein C deficiency is incorrect. This is a rare inherited thrombophilia but is less likely than a deficiency of antithrombin III given the clinical context.

Protein S deficiency is incorrect. This is another rare inherited thrombophilia. It is usually transmitted in an autosomal dominant fashion. The lack of family history and its rarity make it a less likely diagnosis than a deficiency of antithrombin III.

Prothrombin gene mutation is incorrect. This is the second most common inherited thrombophilia. Again, this is less likely than antithrombin III deficiency given the history of nephrotic syndrome.

Question:

A 45-year-old female patient with no risk factors other than well-controlled hypertension, obesity and varicose veins in the lower extremities presented to the emergency department. She reported sudden-onset chest tightness and fainting after slowly mobilising to the bathroom this morning. It was her third postoperative day following recent knee surgery.

Given the likely diagnosis, how long should she be treated for?

A.Life-long

B.1-month

C.2-months

D.3-months

E.6-months

Answer:3-months

Explanation:

'Provoked' pulmonary embolisms are typically treated for 3 months

Important for meLess important

'Provoked' pulmonary embolisms are typically treated for 3 months. In this case, the patient has risk factors with recent surgery and obesity resulting in immobilisation. It is likely that an initial deep vein thrombosis (DVT) has resulted in a pulmonary embolus.

1-month duration would be too short to treat a provoked pulmonary embolus (PE) and would potentially cause complications and increase her risk of mortality.

2-months duration would be insufficient to treat a provoked pulmonary embolus.

6-months duration is generally for people with active cancer and a confirmed proximal DVT or PE.

Life-long or indefinite anticoagulation is recommended in those patients with unprovoked PE or persistent risk factors such as antiphospholipid syndrome, active cancer or thrombophilia.

Question:

Following catheterisation for acute urinary retention secondary to a lower urinary tract infection, the patient's post-void bladder volume is recorded.

What is the acceptable upper limit of residual urine in patients < 65 years old?

A.20ml

B.50ml

C.100ml

D.500ml

E.800ml

Answer:50ml

Explanation:

Post-void volumes <50 ml are normal in patients aged < 65 years old

Important for meLess important

Post-void volumes of <50 ml are considered physiological in patients aged < 65 years old.

Post-void volumes of < 100ml are considered physiological in patients aged > 65 years old.

Chronic urinary retention is defined by the presence of >500ml within the bladder after voiding.

Post-catheterisation urine volume of >800 ml suggests acute-on-chronic urinary retention.

Question:

An 11-year-old girl is brought to the Emergency Department by her parents after the sudden appearance of widespread blistering, sore mouth and skin tenderness. She also has a three-day history of high fevers and malaise. She has no past medical history except amoxicillin for an ear infection two weeks ago.

She appears systemically unwell with a temperature 39.2ºC, heart rate 187 bpm, blood pressure 100/54 mmHg, respiratory rate 22 /min and SpO2 98%.

On examination, there are widespread erythematous bullae and vesicles covering almost half the body surface. Lesions are also present on the oral mucosa and beginning to affect the eyes. Nikolsky's sign is positive.

What is the most likely diagnosis?

A.Anaphylaxis

B.Erythema multiforme

C.Necrotising fasciitis

D.Staphylococcal scalded skin syndrome

E.Toxic epidermal necrolysis

Answer:Toxic epidermal necrolysis

Explanation:

Toxic epidermal necrolysis is a rare but important side effect of which to be aware of penicillins

Important for meLess important

The most likely diagnosis in this patient is toxic epidermal necrolysis (TEN) in response to the amoxicillin. This is a potentially life-threatening skin condition characterised by widespread diffuse erythema which progress to vesicle and bullae and within days skin begins slough. It appears very similar to extensive burns. Nikolsky's sign is when gentle lateral pressure on what appears to be an uninvolved site causes the area of sloughing to extend. About two-thirds of cases can be attributed to medication, with reaction onset between four days and four weeks after the first use of the drug.

Anaphylaxis is unlikely as the airway swelling would usually affect oxygen saturation and respiratory rate. The key feature in the history that tells you it is not anaphylaxis is that the onset was two weeks after starting the amoxicillin and anaphylaxis would normally occur within around 20 minutes. Also whilst anaphylaxis often causes a rash it would not be Nikolsky's sign positive.

Necrotising fasciitis is unlikely as the description and distribution of the rash do not fit this diagnosis. In necrotising fasciitis, there is usually an initial area of localised cellulitis that then spreads. Also, often the skin overlying the infection can appear normal or slightly tinged grey. This patient has no history of coming into contact with a source for the infection either.

Staphylococcal scalded skin syndrome (SSSS) is clinically difficult to distinguish from toxic epidermal necrolysis, and both would present with a positive Nikolsky's sign. SSSS only affects the granular cell layer of the epidermis whereas TEN occurs between the epidermis and dermis. However, SSSS normally only affects infants, young children ( usually under 5 years ) and occasionally immunocompromised adults which makes this an unlikely diagnosis in this patient.

Question:

A 35-year-old female presents with tender, erythematous nodules over her forearms. Blood tests reveal:

Calcium 2.78 mmol/l

What is the most likely diagnosis?

A.Granuloma annulare

B.Erythema nodosum

C.Lupus pernio

D.Erythema multiforme

E.Necrobiosis lipoidica

Answer:Erythema nodosum

Explanation:

The likely underlying diagnosis is sarcoidosis

Question:

A 7-year-old boy is taken to the Emergency Department after falling during football. He complains of pain in his left wrist.

The x-ray is shown below:

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What which one of the following best describes this injury?

A.Greenstick fracture

B.Buckle fracture

C.Salter-Harris type 1 fracture

D.Salter-Harris type 2 fracture

E.Salter-Harris type 3 fracture

Answer:Buckle fracture

Explanation:

A typical buckle fracture is shown in this radiograph. This is a common fracture pattern in children due to the pliable nature of the bone.

Question:

A 21-year-old male presents to the Emergency Department after developing severe left iliac fossa pain, abdominal cramping and pyrexia. He has a past medical history of ulcerative colitis which has been previously well managed with oral mesalazine.

He describes a flare in his symptoms over the preceding 4 days, with the passage of 8 loose bowel motions daily which are each mixed with bright red blood.

On examination, his abdomen is soft, with generalized tenderness in all four quadrants and voluntary guarding in the left iliac fossa.

Other observations as follows:

heart rate 110 bpm

blood pressure 116/72 mmHg

temperature 37.9 degrees

oxygen saturations 97% on room air.

He has routine blood tests sent in the department

Hb 104 g/L Male: (135-180)

Female: (115 - 160)

Platelets 325 \* 109/L (150 - 400)

WBC 10.6 \* 109/L (4.0 - 11.0)

Na+ 142 mmol/L (135 - 145)

K+ 3.9 mmol/L (3.5 - 5.0)

Urea 5.6 mmol/L (2.0 - 7.0)

Creatinine 89 µmol/L (55 - 120)

CRP 93 mg/L (< 5)

An abdominal x-ray is requested which shows some thumbprinting of the large bowel mucosa.

Which of the following is the most suitable initial management?

A.Increase dose of oral mesalazine

B.Methotrexate infusion

C.Rectal mesalazine

D.Oral azathioprine

E.Intravenous hydrocortisone

Answer:Intravenous hydrocortisone

Explanation:

A severe flare of ulcerative colitis should be treated in hospital with IV corticosteroids

Important for meLess important

This patient is suffering from an acute exacerbation of his ulcerative colitis (UC). The severity of flares can be gauged using the Truelove and Witts criteria. This patient is passing >6 bloody stools/day, has a low-grade pyrexia and displays features of systemic upset and therefore is classed as severe UC. In order to induce remission, intravenous steroids (e.g hydrocortisone 100mg QDS) to be given in hospital are recommended as first-line therapy.

Oral mesalazine can be used to induce remission in a mild-moderate flare of ulcerative colitis, but is not suitable for induction of remission in severe cases.

Methotrexate is not recommended for use to induce or maintain remission in ulcerative colitis, but has benefit in Crohn's disease and therefore is not suitable in this case.

Rectal mesalazine can be used as an alternative or in addition to oral mesalazine to induce remission in mild-moderate flares. It is particularly efficacious in distal proctitis but it is not suitable for acute severe exacerbations.

Oral azathioprine is most useful to maintain remission after exacerbations of UC (usually 2 in 1 year) which have required steroids. However, it is not used as a sole agent to induce remission of the initial inflammatory process.

Question:

A 65-year-old man presents to the emergency department with sudden-onset weakness. On examination, he has 1/5 strength in the right upper limb and 3/5 in the right lower limb with impaired sensation in both. The left upper and lower limbs are both 5/5 and sensation is intact. Visual field testing demonstrates a defect involving both of the two right halves of his visual field. He is conscious, alert, and orientated to time and place.

His blood glucose concentration is within the normal range and his oxygen saturations are 96%.

Given the likely diagnosis, where is the lesion most likely to be?

A.Left anterior cerebral artery

B.Left middle cerebral artery

C.Right anterior cerebral artery

D.Right anterior inferior cerebellar artery

E.Right middle cerebral artery

Answer:Left middle cerebral artery

Explanation:

Contralateral hemiparesis and sensory loss with the upper extremity being more affected than the lower, contralateral homonymous hemianopia and aphasia - middle cerebral artery

Important for meLess important

Left middle cerebral artery is correct. This patient has sudden-onset focal neurological defects which suggest the presence of a stroke. This patient has right-sided hemiparesis and sensory loss that is worse in the upper extremity than the lower. As well as this, they have right-sided homonymous hemianopia. These features suggest that the left middle cerebral artery is affected, as strokes in this location lead to contralateral hemiparesis and sensory loss and homonymous hemianopia. The middle cerebral artery supplies the primary motor and somatosensory cortices, with a greater supply to the zone corresponding to the upper limb than the lower. The homonymous hemianopia is due to the involvement of the optic radiation which is also supplied by the middle cerebral artery.

Left anterior cerebral artery is incorrect. Although this would also cause right-sided hemiparesis and sensory loss, the lower extremity would be affected more than the upper extremity, as the anterior cerebral artery has a greater supply to the zones of the cortices corresponding to the lower limb than the upper limb. Homonymous hemianopia is not seen if the anterior cerebral artery is affected.

Right anterior cerebral artery is incorrect. This would also cause left-sided hemiparesis and sensory loss, the lower extremity would be affected more than the upper extremity, as the anterior cerebral artery has a greater supply to the zones of the cortices corresponding to the lower limb than the upper limb. Homonymous hemianopia is not seen if the anterior cerebral artery is affected.

Right anterior inferior cerebellar artery is incorrect. This would lead to right-sided facial pain and temperature loss and left-sided limb and/or torso pain with temperature loss, ataxia, and nystagmus. These features are not present in this case.

Right middle cerebral artery is incorrect. This would present similarly with hemiparesis and sensory loss affecting the upper limb more than the lower limb, however, the signs would be on opposite sides. Additionally, this may cause aphasia, as the right middle cerebral artery supplies the speech centre in most individuals. The symptoms are contralateral because both the motor and sensory pathways decussate after the lesion.

Question:

A 27-year-old woman who is 10 weeks pregnant presents with 'cystitis'. She describes a two day history of dysuria, suprapubic pains and frequency. There has been no vaginal bleeding. Urine dipstick is positive for leucocytes and nitrites. Her temperature is 37.6ºC. What is the most appropriate management?

A.Oral nitrofurantoin

B.Await the midstream specimen of urine (MSU) result

C.Oral trimethoprim

D.Oral ciprofloxacin

E.Topical clotrimazole

Answer:Oral nitrofurantoin

Explanation:

This pregnant lady has symptoms consistent with a urinary tract infection. The BNF recommend that trimethoprim is avoided in the first trimester as it is a folate antagonist. Ciprofloxacin is contraindicated throughout pregnancy. As this patient clearly has a UTI and is pyrexial should be treated straightaway, rather than waiting for the MSU,

Question:

A 52-year-old woman presented to the hospital with a history of shortness of breath and chest pain. She is known to have left breast cancer which she recently underwent local wide excision. She is due to start her radiotherapy soon. A diagnostic workup reveals that she has a segmental pulmonary embolism. She has good renal function shown on blood tests.

What is the most appropriate treatment of choice for the diagnosis?

A.Apixaban

B.Aspirin

C.Heparin

D.Low molecular weight heparin

E.Warfarin

Answer:Apixaban

Explanation:

Cancer patients with VTE - 6 months of a DOAC

Important for meLess important

Apixaban is the correct answer. The patient has a background of cancer and now VTE. NICE guideline suggests 6 months of DOAC. Evidence suggested that treatment with a direct-acting oral anticoagulant (DOAC) is less likely to result in bleeding complications than treatment with low molecular weight heparin (LMWH) and a vitamin K antagonist (VKA). Additionally, people taking a DOAC benefit by being able to have an oral treatment and avoid the frequent monitoring that is necessary with other types of anticoagulation treatment. Within the DOACs, there was evidence showing that apixaban is the most cost‑effective option, because it results in the fewest bleeds.

Warfarin is incorrect. Warfarin decreases blood clotting by blocking an enzyme called vitamin K epoxide reductase that reactivates vitamin K1. Without sufficient active vitamin K1, clotting factors II, VII, IX, and X have decreased clotting ability. To optimize the therapeutic effect without risking dangerous side effects such as bleeding, close monitoring of the degree of anticoagulation is required by a blood test measuring an INR which is not a convenient and cost-effective option.

Heparin is incorrect. Heparin binds to the enzyme inhibitor antithrombin III (AT), causing a conformational change that results in its activation through an increase in the flexibility of its reactive site loop. Common side effects include bleeding, pain at the injection site, and low blood platelets. Serious side effects include heparin-induced thrombocytopenia. It is given subcutaneously which carries needle stick injury and is not nice to the patient!

Low molecular weight patient is incorrect. LMWHs inhibit the coagulation process through binding to AT via a pentasaccharide sequence. This binding leads to a conformational change of AT which accelerates its inhibition of activated factor X (factor Xa). It is given subcutaneously and used as prophylaxis in hospital patients. Patients with reduced renal function should use heparin instead of LMWH.

Aspirin is incorrect. It is an antiplatelet rather than an anticoagulant which will have no effect in resolving the clot. Aspirin given shortly after a myocardial infarction decreases the risk of death. Aspirin is also used long-term to help prevent further heart attacks, ischaemic strokes, and blood clots in people at high risk.

Question:

A 50-year-old man is referred to the spirometry clinic with progressive breathlessness on exertion. He has no other symptoms and his chest x-ray is awaited.

He has no significant past medical history. He smokes 20 cigarettes a day and has done so for 10 years.

On examination, his saturations are 95% on air and his respiratory rate is 14 breaths per minute. His BMI is 40kg/m². His chest is clear to auscultation and there is no clubbing.

His pulmonary function tests are shown below.

FEV1 3.2L (3.8L predicted)

FVC 3.7L (5.1L predicted)

FEV1/FVC 86%

Gas Transfer Normal

What is the likely cause of his symptoms?

A.Asthma

B.Bronchiectasis

C.Chronic Obstructive Pulmonary Disease

D.Idiopathic Pulmonary Fibrosis

E.Obesity

Answer:Obesity

Explanation:

Severe obesity may cause restrictive lung function test results

Important for meLess important

In restrictive lung disease, it is forced vital capacity (FVC) that is significantly reduced. Whilst the forced expiratory volume in 1 second (FEV1) is often also reduced, it is not as reduced as FVC, meaning that the FEV1/FVC ratio is often normal or increased. These findings are seen in this patient, suggestive of a restrictive deficit. The two causes listed of restrictive deficit are idiopathic pulmonary fibrosis and obesity. However, in idiopathic pulmonary fibrosis, the gas transfer would not be normal, as the fibrotic lungs impair gas exchange. The gas transfer is not decreased in obesity as the cause of the restrictive lung deficit is the mechanical compression of the chest, not any intrinsic lung disorder. In fact, the gas transfer may even be increased to the increased lung volumes. These results are therefore likely due to obesity.

Asthma would cause an obstructive, not restrictive, deficit, whereby FEV1 and FEV1/FVC would be significantly reduced and FVC would be slightly reduced or normal.

Bronchiectasis is unlikely from the history; there is no history of recurrent lung infections and no history of cough with sputum. Furthermore, bronchiectasis is also more likely to cause an obstructive, not restrictive, pattern.

Whilst chronic obstructive pulmonary disorder (COPD) is a likely diagnosis in a smoker who complains of breathlessness, this would cause an obstructive picture with a reduced gas transfer. These results are not seen in this patient. Although this patient has a reduced FEV1, the significantly more reduced FVC and the increased FEV1/FVC show that this is a restrictive deficit. FEV1/FVC would be under 70% in a patient with COPD.

Idiopathic pulmonary fibrosis is the only other cause of restrictive deficit listed. However, there are no examination findings of pulmonary fibrosis (fine inspiratory crackles, clubbing) and gas transfer is normal. These features make pulmonary fibrosis less likely.

Question:

A 68-year-old woman is found unconscious in the street. She is taken by the paramedics to the emergency department where she is found to have a blood glucose of 2.5 mmol/L.

Which of the following could be a cause of her presentation?

A.Hyperthyroidism

B.Pioglitazone

C.Heart failure

D.Addison's disease

E.Metformin

Answer:Addison's disease

Explanation:

Addison's disease is a cause of hypoglycaemia

Important for meLess important

This question is asking about a 68-year-old woman presenting with unconsciousness following hypoglycaemia. Of the options, Addison's disease is a cause of hypoglycaemia.

Causes of hypoglycaemia can be remembered by the mnemonic EXPLAIN

Exogenous drugs (typically sulfonylureas or insulin)

Pituitary insufficiency

Liver failure

Addison's disease

Islet cell tumours (insulinomas)

Non-pancreatic neoplasms

Question:

A 38-year-old intravenous drug user is admitted under the medical team with a 4-day history of chest pain, fever, and malaise. She is noted to have a new, high-pitched holosystolic murmur. As part of her initial work-up, a point of care ultrasound shows abnormal valve movement between the right atrium and ventricle.

The following morning, she is noted to have bilateral pitting oedema, shortness of breath when lying flat, and ascites. She reports that these symptoms have occurred since the onset of her chest pain.

What treatment should be considered for this patient?

A.Emergency valve replacement

B.IV cefotaxime

C.IV hydrocortisone

D.Implantable cardiac defibrillator

E.Spironolactone

Answer:Emergency valve replacement

Explanation:

Infective endocarditis causing congestive cardiac failure is an indication for emergency valve replacement surgery

Important for meLess important

This patient has presented with symptoms consistent with infective endocarditis, which has developed into congestive cardiac failure. This indicates very poor heart valve function and, as such, she should be considered for surgical emergency valve replacement. Cardiac failure secondary to infective endocarditis is not an uncommon complication. However, optimal management with antibiotic therapy and surgical valve replacement is associated with a favourable prognosis.

Whilst this patient has ascites, prescribing IV cefotaxime does not manage the cause of her heart failure. Furthermore, cefotaxime is used to treat spontaneous bacterial peritonitis, rather than prophylactic prevention (which is with ciprofloxacin) which would be more appropriate in this patient.

IV hydrocortisone is not indicated in the management of infective endocarditis. This drug is predominantly used in the replacement of inadequate cortisol levels in patients with adrenocortical insufficiency. It can also be used in the management of inflammatory disorders (such as angioedema and severe inflammatory bowel disease) by reducing leucocyte migration, fibrin deposition and oedema. As steroid drugs are known to lead to suppression of immune responses, they are not a mainstay treatment for active infection (unless in specialised patient groups, such as those with adrenocortical insufficiency).

Implantable cardiac defibrillators (ICD) are not indicated in the management of valve-related congestive cardiac failure or infective endocarditis. An ICD is used in the management of patients with cardiac arrhythmias and acts to prevent sudden cardiac death in patients with abnormal cardiac electrophysiology. The vignette shows a patient with infective endocarditis and her predominant problem is related to her valves, therefore management of this issue (through valve replacement) should be the key treatment option to consider.

Spironolactone is an oral diuretic indicated in the management of ascites. However, due to this patient's congestive cardiac failure-associated ascites, a loop diuretic would be a more appropriate choice.

Question:

A 24-year-old nulliparous woman presents in established labour. Currently, she is contracting every 3 to 5 minutes, for 45 seconds duration. You perform a cervical exam and observe that she is 7cm dilated. The fetal skull and sutures are readily palpable.

What is the current position of the fetal vertex shown in this image?

A.Left occiput posterior

B.Occiput anterior

C.Right occiput posterior

D.Left occiput anterior

E.Right occiput anterior

Answer:Left occiput posterior

Explanation:

Question:

An 18-year-old woman attends the emergency department with drowsiness. She was found lying in the street. Shortly after admission, she has a tonic clinic seizure which is terminated with lorazepam. On examination, you note mydriasis and urinary retention. Her Glasgow Coma Score (GCS) is currently 11 (M5, V3, E3).

An ECG performed in the department is as follows:

ECG Sinus tachycardia (120 beats per minute); QRS duration 140ms; Dominant terminal R wave in aVR; First-degree AV block

What is the most likely cause?

A.Digoxin

B.Dosulepin

C.Ivabradine

D.Quinine

E.Sertraline

Answer:Dosulepin

Explanation:

Dosulepin - avoid as dangerous in overdose

Important for meLess important

Dosulepin is correct, The clinical (e.g. seizures, mydriasis, urinary retention) and electrocardiographic features are most in keeping with tricyclic overdose. These agents block sodium channels resulting in CNS and cardiovascular toxicity in overdose in the form of seizures and ventricular dysrhythmias. Tricyclics mediate their cardiotoxic effects via blockade of myocardial fast sodium channels (e.g. QRS prolongation, tall R wave in aVR), inhibition of potassium channels (e.g. QTc prolongation), and direct myocardial depression.

Digoxin is incorrect, The classical digoxin toxic dysrhythmia combines:

Supraventricular tachycardia (due to increased automaticity)

Slow ventricular response (due to decreased AV conduction)

The broad complex tachycardia in this case makes digoxin toxicity less likely. However rarely this can occur in digoxin toxicity due to a bidirectional ventricular tachycardia (VT) with a frontal-plane axis that alternates by 180 degrees with each successive beat.

Ivabradine is incorrect. Ivabradine toxicity can cause bradycardia, sinus arrest, and heart block.

Quinine is incorrect. Although quinine is also a sodium channel-blocking agent and can cause a wide complex tachyarrhythmia, the presence of mydriasis and urinary retention favours a diagnosis of amitriptyline toxicity.

Sertraline is incorrect. SSRI overdose can predispose to prolonged QTc and Torsades de pointes. Although seizures and mydriasis (e.g. serotonin syndrome) can occur with SSRI toxicity, the electrocardiographic features of a broad complex tachycardia and a dominant terminal R wave in aVR are more consistent with tricyclic toxicity.

Question:

A 78-year-old male presents to the medical assessment unit after becoming confused over the last 4 days. He has vomited twice and complains of a headache. He has a history of type 2 diabetes mellitus and depression, and his medications include metformin, ramipril and sertraline.

Examination findings are insignificant. He doesn't appear septic.

A series of investigations are performed.

Result Reference Range

Na+ 129 mmol/L (135 - 145)

K+ 4.2 mmol/L (3.5 - 5.0)

Urea 2.6 mmol/L (2.0 - 7.0)

Creatinine 68 µmol/L (55 - 120)

Glucose 5.8 mmol/L (4 - 7)

Result Reference Range

Serum osmolality 255 mOsm/kg >275 mOsm/kg

Urine osmolality 136 mOsm/kg <100 mOsm/kg

Urinary sodium 53 mmol/L <20 mmol/L

Based on the likely diagnosis, what is the most appropriate initial management?

A.Desmopressin

B.Fluid restriction

C.IV 0.9% sodium chloride

D.IV hypertonic saline

E.Indomethacin

Answer:Fluid restriction

Explanation:

SIADH is treated with fluid restriction

Important for meLess important

Syndrome of inappropriate antidiuretic hormone secretion (SIADH) presents with hyponatremia, hypo-osmolar serum and hyper-osmolar urine with increased urinary sodium. Patients should be fluid restricted, to increase serum sodium and correct the hyponatremia. Hyponatremia can cause cerebral oedema which presents with symptoms such as lethargy, nausea and vomiting, headache, confusion and decreased GCS.

Pulmonary infections (i.e. pneumonia) and selective serotonin reuptake inhibitors (SSRIs) can both cause SIADH. The increase in ADH triggers increased insertion of aquaporin-2 channels in the collecting ducts and distal convoluted tubules, increasing water reabsorption. This results in reduced excretion of water in the urine, diluting electrolytes in the blood and increasing the osmolality of the urine.

Desmopressin is a synthetic form of ADH, used in diabetes insipidus where there is a central cause e.g. damage to the pituitary from surgery or head trauma. This patient already has excess ADH, so desmopressin would make the condition worse.

IV 0.9% sodium chloride would be used in hypovolaemic hyponatremia, but is not needed in this euvolemic patient.

IV hypertonic saline is used in moderate hyponatremia (serum sodium 120-129 mmol/L).

Indomethacin is a non-steroidal anti-inflammatory drug (NSAID) and is not used in the treatment of SIADH.

Question:

A 24-year-old woman is seen in a sexual health clinic complaining of 5 days of vaginal discharge and bleeding. She had her last menstrual period 2 weeks ago and she does not normally suffer from inter-menstrual bleeding. She reports having unprotected sexual intercourse 3.5 weeks ago.

A cervical swab is taken and a nuclear acid amplification test (NAAT) is positive for Chlamydia trachomatis. The patient has a negative pregnancy test. There are no concerns about pelvic inflammatory disease (PID).

What antibiotic would you prescribe?

A.Azithromycin oral - single dose

B.Ceftriaxone IM - single dose

C.Doxycycline oral - 7 days

D.Erythromycin oral - 14 days

E.Ofloxacin oral + metronidazole oral - 14 days

Answer:Doxycycline oral - 7 days

Explanation:

Chlamydia - treat with doxycycline

Important for meLess important

Doxycycline orally - 7 days is the correct answer. Doxycycline is the preferred antibiotic as patients with Chlamydia are at higher risk of co-infection with Mycoplasma genitalium, which is often resistant to macrolide antibiotics. Note, doxycycline should be avoided in pregnant patients (can cause transient suppression of foetal bone growth), but this patient has had a negative pregnancy test.

Azithromycin oral - single dose: azithromycin can be prescribed for Chlamydia, but is now second line due to macrolide resistance to Mycoplasma genitalium (as above). However, it is an option in pregnant patients.

Ceftriaxone IM - single dose: this is the treatment for Gonorrhoea.

Erythromycin oral - 14 days: like azithromycin, erythromycin is second line due to macrolide resistance to Mycoplasma genitalium. It can also be used in pregnant patients.

Ofloxacin oral + metronidazole oral - 14 days: this is the treatment for pelvic inflammatory disease.

Question:

A 24-year-old male presents to the rheumatology clinic with a 3-month-history of lower back pain that radiates to his buttocks. His symptoms are worst in the morning, improve with exercise and occasionally wake him from sleep in the early hours of the morning.

Which of the following is most likely to be seen in this patient?

A.A failure of his symptoms to improve with naproxen

B.Bamboo spine on plain x-ray

C.Obstructive defect on spirometry

D.Syndesmophytes on plain x-ray

E.HLA-B27 negative

Answer:Syndesmophytes on plain x-ray

Explanation:

Syndesmophytes (ossification of outer fibres of annulus fibrosus) are a feature of ankylosing spondylitis

Important for meLess important

This patient is presenting with symptoms of inflammatory joint pain (worst in the morning, improve with exercise) which, given his age, gender and nature of pain, is most likely due to ankylosing spondylitis. A common feature of ankylosing spondylitis is the presence of plain x-ray. These are seen as ossifications inside spinal ligaments or of the annulus fibrosus of intervertebral discs.

A failure of his symptoms to improve with naproxen is incorrect. The opposite would in fact be true as a common feature of inflammatory joint pain is that it improves with the use of non-steroidal anti-inflammatory (NSAID) medication.

A bamboo spine on plain x-ray is incorrect as this is a late sign which is rarely seen in clinical practice.

An obstructive defect on spirometry is incorrect. Ankylosing spondylitis may be associated with apical lung fibrosis, but this would present with a restrictive defect on spirometry.

HLA-B27 negative is incorrect as many patients with ankylosing spondylitis are in fact positive for HLA-B27.

Question:

A 2-month old baby is admitted to the Paediatric Ward with persistent vomiting and failure to gain weight.

Bloods taken on admission show the following:

Na+ 136 mmol/l

K+ 3.1 mmol/l

Cl- 81 mmol/l

HCO3- 30 mmol/l

An ultrasound of the stomach and duodenum is performed:

© Image used on license from Radiopaedia

What is the most likely diagnosis?

A.Duodenal atresia

B.Pyloric stenosis

C.Malrotation

D.Gastro-oesophageal reflux disease

E.Coeliac disease

Answer:Pyloric stenosis

Explanation:

The ultrasound demonstrates a thickened and elongated pylorus. The bloods also show a hypochloraemic, hypokalaemic alkalosis in keeping with the diagnosis.

Question:

A 74-year-old man presents to the haematology department. Approximately one year ago he was diagnosed in your clinic with a myelodysplastic disorder confirmed by a bone marrow biopsy after a routine GP blood test identified an unexplained low red blood cell and platelet count. Today he is complaining of a recent decline, including tiredness, shortness of breath and feeling feverish. He is concerned that he his cancer may have transformed. Which form of cancer would he be most likely to have?

A.Acute lymphoblastic leukaemia

B.Myeloma

C.Acute myeloid leukaemia

D.Non-Hodgkin's lymphoma

E.Hodgkin's lymphoma

Answer:Acute myeloid leukaemia

Explanation:

Myelodysplasia may progress to acute myeloid leukaemia

Important for meLess important

Myelodysplasia is a form of bone marrow failure where a line of myeloid blasts are produced rapidly, do not mature and then usually die, causing a deficiency in that line of cells. Around a third of cases will eventually transform to become acute myeloid leukaemia, where the bone marrow becomes > 20% filled with these myeloid blast cells. There are many different subtypes of myelodysplasia which have different risks

Over time, about one-third of all MDS cases evolve to become AML. The risk of developing AML depends largely on which MDS subtype you have at the time of diagnosis, but risk ranges between 20-40% between the subtypes.

Question:

A 33-year-old man has been diagnosed with ankylosing spondylitis. Unfortunately, it is not well controlled, and his rheumatologist thinks he should start on a new medication.

How many different non-steroidal anti-inflammatory drugs must this patient have failed to respond to before he can be started on anti-TNF alpha inhibitors, in someone with predominantly axial disease?

A.1

B.2

C.3

D.4

E.5

Answer:2

Explanation:

Anti-TNF alpha inhibitors should be used in axial ankylosing spondylitis that has failed on 2 different NSAIDS and meets criteria for active disease on 2 occasions 12 weeks apart

Important for meLess important

Anti-TNF alpha inhibitors should be used in axial ankylosing spondylitis that has failed on 2 different NSAIDS and meets criteria for active disease on 2 occasions 12 weeks apart. Physio should be used throughout the treatment.

Question:

A 30-year-old Afro-Caribbean lady with known systemic lupus erythematosus presents complaining of fatigue and shortness of breath, which started 2 months ago, and has worsened since then. Her friends have also commented that her skin “appears a little yellow”. She denies vomiting or diarrhoea, and has no other medical history. She currently only takes hydroxychloroquine, as non-steroidal anti-inflammatory drugs were not effective and so she stopped taking them.

On examination, she looks mildly jaundiced, and has pale conjunctiva. There are no signs of bleeding or petechiae, and her neurological examination is normal. Blood tests reveal a low haemoglobin, a raised LDH, and raised bilirubin. A blood film shows spherocytes, and a direct Coombs test is positive.

What is the underlying cause of the patient’s symptoms?

A.Drug-induced haemolytic anaemia

B.Autoimmune haemolytic anaemia

C.Haemolytic uraemic syndrome

D.Hereditary spherocytosis

E.Autoimmune thrombocytopenia purpura

Answer:Autoimmune haemolytic anaemia

Explanation:

SLE is a cause of autoimmune haemolytic anaemia

Important for meLess important

A low haemoglobin suggests anaemia.

A raised LDH suggests cell lysis, and in the context of anaemia, indicates haemolytic anaemia.

A raised bilirubin further points to this (this indicates that RBCs are breaking down in the liver).

Although drug-induced haemolytic anaemia (answer 1) can cause a positive Coombs test, the only drug she takes is hydroxychloroquine - and importantly NOT NSAIDs - means that this is very unlikely (NSAIDs can cause haemolytic anaemia, but hydroxychloroquine is not known to).

That the patient has had no vomiting makes HUS (answer 3) less likely.

The presence of spherocytes (which indicates extravascular, rather than intravascular haemolytic anaemia) makes hereditary spherocytosis (answer 4) possible, but the positive Coombs test rules this out.

She also has no signs of low platelets (thrombocytopenia), thus ruling out answer 5.

The positive Coombs test (which tests for antibodies) confirms that the answer must be 2. Additionally, SLE is a known cause of autoimmune haemolytic anaemia.

Question:

A 54-year-old lady is admitted to hospital with symptoms of lethargy and shortness of breath. Her blood results are as follows:

Hb 65 g/l

Platelets 378 \* 109/l

WBC 6 \* 109/l

You decide that she requires a blood transfusion for her symptomatic anaemia, and subsequently arrange for a transfusion of one unit of red blood cells, which the patient consents to.

During administration of the blood transfusion nurses alert you to an increase in the patient's temperature of 0.8ºC. The remainder of her observations are stable, within the normal range, and the patient feels well. You pause the transfusion to consider that she may be experiencing a non-haemolytic febrile transfusion reaction.

Which of the following would be the most appropriate in the management of this patient?

A.IV antibiotics

B.IM adrenaline

C.Abandon the transfusion

D.IV/PO paracetamol

E.IV furosemide

Answer:IV/PO paracetamol

Explanation:

Paracetamol may be used to reduce pyrexia in cases of non-haemolytic febrile transfusion reaction

Important for meLess important

Patients with non-haemolytic febrile transfusion reaction will experience an increase in temperature (<1.5ºC) during administration of blood transfusion, but appear systemically well with stable observations. Although it is important to pause the transfusion and assess for the risk of sepsis in such situations. If paracetamol reduces the patient's temperature appropriately, it is safe to restart the transfusion at a slower rate, and increase subsequent frequency of observations.

Source: https://www.transfusionguidelines.org/transfusion-handbook/5-adverse-effects-of-transfusion/5-2-non-infectious-hazards-of-transfusion

Question:

A 32-year-old female patient is referred to colposcopy clinic following her routine cervical smear which demonstrated high-grade dyskaryosis.

She denies any significant past medical history but has smoked 15 cigarettes/day for the past ten years. She has been in a monogamous relationship for the past 3 years and has used combined oral contraceptives for the duration of this relationship.

Which of the following is most likely to significantly increase this patient's risk of developing cervical cancer?

A.Use of combined oral contraceptive

B.Smoking

C.Human papillomavirus subtype 6

D.Human papillomavirus subtype 16

E.Human papillomavirus subtype 22

Answer:Human papillomavirus subtype 16

Explanation:

HPV subtypes 16,18, 33 are carcinogenic and increase the risk of cervical cancer

Important for meLess important

Human papillomavirus (HPV) subtypes 16,18, 33 are the most significant risk factors for developing cervical cancer. Though it should be noted that the majority of healthy women will spontaneously clear HPV within 2 years without developing cervical cancer.

Smoking is a risk factor for cervical cancer likely through inhibition of the immune system in clearing HPV infection.

Combined oral contraceptives (COC) are implicated in an increase in cervical cancer (and breast cancer), but in the case of cervical cancer risk is increased when taking COC for more than 5 years.

HPV subtypes 6,11 are low risk for cervical cancer.

HPV subtypes 2,7,22 cause common warts.

Question:

You review a 67-year-old man with type 2 diabetes mellitus in the diabetes clinic. His blood pressure is currently 150/86 mmHg. His diabetes is well controlled and there is no evidence of end-organ damage. What should his target blood pressure be?

A.< 140/80 mmHg

B.< 125/75 mmHg

C.< 140/85 mmHg

D.< 130/80 mmHg

E.< 140/90 mmHg

Answer:< 140/90 mmHg

Explanation:

NICE recommend the following blood pressure target for type 2 diabetics: < 140/90 mmHg

Important for meLess important

Question:

A 48-year-old woman presents to the Emergency Department with episodes of palpitations, which have been ongoing for the last 2 months. Her past medical history includes diabetes, for which she takes metformin, and hypertension, for which she takes ramipril.

An ECG is performed which shows the following:

© Image used on license from Dr Smith, University of Minnesota

Given the above ECG, what is the most appropriate initial treatment?

A.Calcium gluconate

B.Calcium resonium

C.IV fluids

D.Insulin and 10% dextrose

E.Synchronised cardioversion

Answer:Calcium gluconate

Explanation:

Calcium gluconate is the correct answer.

The ECG shows a rate of around 66 bpm, a regular rhythm and no axis deviation. The ECG shows findings that indicate severe hyperkalaemia: tall tented T waves, flattened P waves and abnormal QRS complexes. Calcium gluconate is the first step in the management of severe hyperkalaemia as it stabilises the cardiac membrane and reduces the risk of ventricular fibrillation. Note that calcium gluconate does not affect serum potassium levels. The likely cause of this hyperkalaemia is the use of an ACE-inhibitor, ramipril.

Calcium resonium is incorrect. Although it plays a part in the management of hyperkalaemia by binding to potassium and removing it from the body, it is not the first step in managing the condition.

IV fluids is incorrect. IV fluids may be used to correct hypercalcaemia, in which you would expect to see a shortening of the QT interval and J waves if severe. Hypercalcaemia would not account for the ECG changes here.

Insulin and 10% dextrose is incorrect. These are used in the management of hyperkalaemia but it is not the initial management - calcium gluconate should be given in the first instance to protect the myocardium.

Synchronised cardioversion is incorrect. This does not play a part in the management of hyperkalaemia but is used to treat haemodynamically unstable ventricular or supraventricular rhythms.

Question:

A 78-year-old man presents to the emergency department with severe, crushing chest pain and shortness of breath. He is seen immediately and, among other investigations, an ECG is performed. You are the F1 in the department, and your registrar says that the ECG shows tall R waves in the V1 and V2 leads.

What is this man suffering from?

A.Anterior myocardial infarction

B.Cardiac tamponade

C.Inferior myocardial infarction

D.Pericarditis

E.Posterior myocardial infarction

Answer:Posterior myocardial infarction

Explanation:

Posterior MI typically present on ECG with tall R waves V1-2

Important for meLess important

This is a typical history of a posterior myocardial infarction (MI)- chest pain with tall R waves in V1+V2. This would be typical of a left coronary artery occlusion. An anterior MI would have ST elevation in leads V1-4, inferior would have ST elevation in II, III, and aVF. Pericarditis will cause widespread ST elevation, and cardiac tamponade will have a phenomenon called 'electric alternans'- beat to beat variation in electrical amplitude.

Question:

A 32-year-old mother, gravida 5 presents in labour having had no antenatal follow up. The neonate is born with the bowel protruding out of the abdomen but you note that it has a peritoneal covering protecting it.

What is the optimal management of the protruding bowel?

A.Cover in cling-film and surgically correct within first 5 days of life

B.Cover in cling-film and allow natural correction

C.Immediate surgical correction

D.Removal of the protruding bowel and formation of a permanent stoma

E.Staged closure starting immediately with completion at 6-12 months

Answer:Staged closure starting immediately with completion at 6-12 months

Explanation:

Exomphalos should have a gradual repair to prevent respiratory complications. Gastroschisis requires urgent correction

Important for meLess important

This is an example of exomphalos (omphalocele), these are usually detected antenatally but some are missed and other patients don’t engage with antenatal care. The key differential is gastroschisis in which a paraumbilical abdominal wall defect results in abdominal contents being outside the body, without a peritoneal covering. The prognosis is good if operated on as soon as possible and whilst waiting the bowel should be protected with cling-film. Intestinal function will take time to normalise and thus the child may require TPN for a few weeks.

Omphalocele may be repaired quickly or in stages and often a staged repair is preferred (especially with larger defects) as returning the abdominal contents can cause respiratory insufficiency or inability to close the abdomen, both of which can result in death. Therefore gradual closure allows the pulmonary system to adapt to the increased abdominal contents over 6-12 months. There is no need for a cling-film covering as the peritoneum will already be protecting the bowel in omphalocele.

Question:

A 55-year-old man presents for review. He is of Afro-Caribbean descent and has been taking amlodipine 10mg daily. On review of his blood pressure readings, he has had an average of 154/93 mmHg over the last 2 months. The blood pressure today is 161/96 mmHg. Further management is discussed with the patient and he is keen to get his blood pressure under control.

What is the best treatment to commence in this situation?

A.Add alpha blocker

B.Add angiotensin converting enzyme (ACE) inhibitor

C.Add angiotensin receptor blocker

D.Add beta blocker

E.Increase the dose of amlodipine

Answer:Add angiotensin receptor blocker

Explanation:

For patients of black African or African–Caribbean origin taking a calcium channel blocker for hypertension, if they require a second agent consider an angiotensin receptor blocker in preference to an ACE inhibitor

Important for meLess important

This patient would benefit from the addition of an angiotensin receptor blocker, such as candesartan, to reduce his blood pressure. This class of medication has been shown to be more effective in patients of African-Caribbean origin when compared to an ACE inhibitor.

An alpha-blocker is not indicated at this stage, it could be considered at step 4 of the guidelines when the potassium is greater than 4.5mmol/L and spironolactone cannot be commenced.

An ACE inhibitor would be a good choice in general, but given the patient's heritage, it would be less effective than an angiotensin receptor blocker.

A beta-blocker is not required at this stage and these medications make for poor antihypertensive. They are much more suited for heart failure and post-myocardial infarction. It could be considered at step 4 of the guidelines when the potassium is greater than 4.5mmol/L.

Increasing the dose of amlodipine is unlikely to help in this situation. The patient is already on a maximal dose of 10mg daily and is unlikely to benefit from the further increase.

Question:

A 22-year-old man with a background of end stage renal disease uses continuous ambulatory peritoneal dialysis (CAPD) at home.

He presents to the renal unit feeling lethargic, feverish and vomiting.

What is the most likely pathogen causing this man to be unwell?

A.Candida

B.Escherichia coli

C.Pseudomonas aeruginosa

D.Mycoplasma genitalium

E.Staphylococcus epidermis

Answer:Staphylococcus epidermis

Explanation:

Coagulase-negative Staphylococcus is the most common cause of peritonitis secondary to peritoneal dialysis

Important for meLess important

Coagulase-negative staphylococcal species such as Staphlyococcus epidermis are the most common pathogens causing peritonitis as they colonise the skin and hands and the patient or the carer will then contaminate the dialysis equipment inadvertently by touch.

Staphylococcus aureus is a gram positive cocci and whilst a common pathogen causing peritonitis, it is secondary to Staphylococcus epidermis.

Candida and Pseudomonas aeruginosa are more commonly associated with exit-site or tunnel infections, where the pathogens will spread down the outside of the catheter tunnel and into the peritoneum.

E. coli is the most common gram-negative causative pathogen though gram-positive cocci are the most common infective organisms overall.

Mycoplasma genitalium is a sexually transmitted organism most commonly associated with urethritis.

Question:

An 8-year-old boy presents to GP with his mother. His mother explains that he is still bed-wetting almost every night. He has been extensively investigated in the past year for this issue and has no physical defects to explain his enuresis. He is otherwise fit and well.

Mum has tried limiting his fluid intake before bedtime, encouraging regular, timely toileting, and lifting and waking, to no avail.

What is the most appropriate next step to manage his enuresis?

A.Enuresis alarm

B.No fluid intake for 2-hours before bedtime

C.Refer for sleep studies

D.Trial desmopressin

E.Urine dip for UTI

Answer:Enuresis alarm

Explanation:

An enuresis alarm is generally used first-line for nocturnal enuresis if general advice has not helped

Important for meLess important

Enuresis alarm is the first-line therapy following general advice. This is an alarm that will make a loud sound or vibrate when a sensor detects moisture from even a small amount of urine. This can take months before having an effect but is generally considered an effective therapy, with up to 60% of patients having dry nights at follow-up.

No fluid intake for 2-hours before bedtime never forms part of enuresis management. Limiting fluids throughout the day and before bedtime (particularly caffeinated drinks) forms part of general advice, which has already been tried, but withholding all fluids is not recommended.

Refer for sleep studies is incorrect. While enuresis in a child this age should warrant consideration of other conditions that can cause/worsen the issue, such as sleep-disordered breathing, this is not the most appropriate management at this stage.

Trial desmopressin is not indicated at this stage. Desmopressin is an analogue of anti-diuretic hormone (ADH) and is used when general advice and enuresis alarm has failed.

Urine dip for UTI is incorrect. UTIs can cause incontinence/enuresis but this issue has been ongoing for a long time, at least a year. If this patient had a UTI one would have seen other signs/symptoms by this stage.

Question:

A 54-year-old male with no past medical history is found to be in atrial fibrillation during a consultation regarding a sprained ankle. He reports no history of palpitations or dyspnoea. After discussing treatment options he elects not to be cardioverted. Examination of the cardiovascular system is otherwise unremarkable with a blood pressure of 118/76 mmHg. According to the latest NICE guidelines, if the patient remains in chronic atrial fibrillation what is the most suitable treatment to offer?

A.No treatment

B.Warfarin

C.Dabigatran

D.Aspirin + dipyridamole

E.Aspirin

Answer:No treatment

Explanation:

Anticoagulation should be considered for the following:

Men: CHA2DS2-VASC >= 1

Women CHA2DS2-VASC >= 2

Important for meLess important

The CHA2DS2-VASc score for this man is 0. NICE therefore recommend that he does not require anticoagulation.

Question:

You review the chest x-ray of a 35-year-old man who started treatment for a chest infection two weeks ago. He completed a one week course of antibiotics but still feels short-of-breath on exertion. He has a 15 pack-year history of smoking.

On examination his respiratory rate is 16/min, saturations 98% on room air and auscultation of his chest is unremarkable.

His chest x-ray is shown below:

© Image used on license from Radiopaedia

What does the chest x-ray show?

A.Right lower lobe collapse

B.Lung tumour

C.Pleural effusion

D.Elevated right hemidiaphragm

E.Persistent consolidation

Answer:Pleural effusion

Explanation:

The chest x-ray shows a right basal opacity obscuring the right costodiaphragmatic recess with a meniscus, findings consistent with a pleural effusion. Lungs and pleural spaces are otherwise unremarkable. Cardiomediastinal contour within normal limits.

Question:

A 50-year-old man attends a regular optometry appointment for a general eye-health check-up. He has a history of diabetes with poor adherence to medication, and he does not frequently check his blood sugar levels. On fundoscopy, diffuse neovascularisation was noted, as well as cotton wool spots.

What following treatment pathway would be most beneficial for this patient?

A.Intravitreal VEGF inhibitors + pan-retinal photocoagulation laser

B.Intravitreal VEGF inhibitors only

C.Macular laser therapy

D.Pan-retinal photocoagulation laser only

E.Watchful waiting in combination with regular optometry visits

Answer:Intravitreal VEGF inhibitors + pan-retinal photocoagulation laser

Explanation:

Intravitreal VEGF inhibitors may be used in addition to panretinal laser photocoagulation to treat proliferative diabetic retinopathy

Important for meLess important

Intravitreal VEGF inhibitors + pan-retinal photocoagulation laser is the correct answer. This patient has stage 3 proliferative diabetic retinopathy, and so will benefit from a combination of both an anti-vascular endothelial growth factor (VEGF) injection and pan-retinal photocoagulation laser.

Intravitreal VEGF inhibitors and pan-retinal photocoagulation laser only (and not in combination with each other) is incorrect as a combination of both techniques should be used to manage proliferative diabetic retinopathy.

Macular laser therapy is incorrect as it is more focused on treated macular oedema.

Watchful waiting is incorrect as this individual has advanced proliferative diabetic retinopathy and is at a very high risk of losing his sight.

Question:

A 72-year-old man with a recent chest infection present to the Emergency Department with severe pain in his right knee. A joint aspirate is carried out and analysis of the synovial fluid is performed. This shows the presence of positively birefringent crystals. He is currently taking desferioxamine to treat his iron overload. For his musculoskeletal symptoms, which of the following would be the most appropriate initial management?

A.Ibuprofen

B.Allopurinol

C.Methotrexate

D.Sulfasalazine

E.Capsaicin

Answer:Ibuprofen

Explanation:

Haemochromatosis is a risk factor for pseudogout

Important for meLess important

Pseudogout, also known as calcium pyrophosphate deposition (CPPD), is caused by an excess of calcium pyrophosphate levels in the body. Risk factors include haemochromatosis, hyperparathyroidism, hypophosphataemia, hypothyroidism and hypomagnesemia. Also old age is a big risk factor.

This patient is taking iron chelating agents for his iron overload, ie haemochromatosis.

The first line treatment for pseudogout is NSAIDs and colchicine.

Allopurinol would have no effect as pseudogout is not due to uric acid overload

Methotrexate can be used for chronic pseudogout, however it isn't first line

Sulfasalazine is not indicated for pseudogout.

Capsaicin can be used for osteoarthritis, however is not indicated for pseudogout

Question:

Jackie is a 33-year-old female who is on the psychiatric ward being treated for bipolar disorder. She is currently taking lithium after being started on it 3 weeks ago. The doctor needs to take bloods to check if her levels have stabilised. Her last dose was 9am this morning, it is currently 12pm.

When should the doctor take the bloods?

A.Immediately

B.In 3 hours

C.In 6 hours

D.In 9 hours

E.In 12 hours

Answer:In 9 hours

Explanation:

When checking lithium levels, the sample should be taken 12 hours post-dose

Important for meLess important

The correct answer is 9pm that evening as levels should be checked 12 hours after the last dose which was at 9am this morning.

Ideally, the dose should be taken in the evening so bloods can be taken the following morning.

If taken too soon, the drug will not have had time to be metabolised and excreted so you will likely get a result that is too high which could lead to you decreasing the dose incorrectly.

If taken too late, the drug will have been excreted too much and the patient may have their dose increased incorrectly.

Question:

A 55-year-old man presents to the GP complaining of chest pain. He describes central chest pain that starts when he is exerting himself and stops when he rests. This has been going on for three months. The last time he had chest pain was four days ago. He has a history of hypertension. His only regular medication is ramipril.

On observation he appears well and his observations are all normal. You perform an ECG which shows sinus rhythm.

What is the best way of investigating the cause of his pain?

A.Refer for invasive coronary angiography

B.Refer for CT coronary angiography

C.Refer for non-invasive function imaging

D.Call an ambulance

E.Refer for echocardiography

Answer:Refer for CT coronary angiography

Explanation:

Contrast-enhanced CT coronary angiogram is the first line investigation for stable chest pain of suspected coronary artery disease aetiology

Important for meLess important

The pain this patient describes sounds like typical angina. Therefore he needs further investigation. CT coronary angiography is 1st line for investigating someone with stable angina. The purpose of this scan is to assess blood flow through the coronary arteries and to look for any narrowing or blockages in the arteries.

Invasive coronary angiography is the 3rd line investigation. As the name implies, this procedure is more invasive and involves inserting a flexible catheter into the arm or groin.

Non-invasive functional imaging is the 2nd line investigation. These are a group of investigations which look for reversible cardiac ischaemia and show how the heart works under stress. Different tests can be used depending on the circumstances and the person's preferences.

There is no need to call an ambulance in this case.

Normal echocardiography is not an investigation for stable angina.

Question:

A 34-year-old man presents to the emergency department with a painful right calf. This has been slowly getting worse for the past 2 days and came without any warning. He uses heroin regularly but has otherwise no medical history of note. He admits to sometimes using blood vessels on his feet and the back of his knee to inject.

On examination, the right calf is paler than his left. Popliteal pulses can be felt, but his anterior tibialis is difficult to find on the right. He is unable to move his right foot. There is no tenderness, changes in calf size or systemic upset.

What is the most likely diagnosis?

A.Acute limb ischaemia

B.Compartment syndrome

C.Critical limb ischaemia

D.Deep vein thrombosis

E.Hypovolaemic shock

Answer:Acute limb ischaemia

Explanation:

Acute limb-threatening ischaemia presents with the 6 P's: pale, pulseless, pain, paralysis, paraesthesia, perishingly cold

Important for meLess important

This man presents with a relatively acute onset of lower leg pain, which is accompanied by loss of distal pulses, pallor and paralysis. Heroin use may precede the development of an arterial thrombus if it is accidentally injected into an artery instead of a vein. This constellation of symptoms, along with the characteristic symptoms, should point towards a diagnosis of acute limb ischaemia. This is when the arterial supply is restricted to a distal part of the body. Whilst there are 6 P's as the main symptoms, it is unlikely in practice that all 6 present collaterally.

Compartment syndrome is an important differential for a painful lower limb. It would be expected to present with tenderness, and the pain is unlikely to be put up with for 2 days before seeking help. Equally, there would normally be a precipitating event, such as trauma to the leg, which is not present in this case.

Critical limb ischaemia may present similarly to acute limb ischaemia, but it is due to chronic arterial occlusion. Symptoms will be present longer than 2 weeks, and therefore, this diagnosis is not likely here.

Deep vein thrombosis is another important differential. This would be expected to present with redness, swelling and tenderness, none of which are present in this scenario.

Hypovolaemic shock may be an explanation for the loss of his distal pulse. However, it would not normally present with a 2-day onset, all limbs would be affected equally, and there would be evidence of hypotension on his vital signs.

Question:

A 52-year-old originally presents with frequent, on-off epigastric discomfort and burning, radiating up to the throat, commonly associated with certain food types.

A gastroscope reveals evidence of significant gastritis but H.pylori testing is inconclusive. He is commenced on omeprazole and two antibiotics which improved his symptoms but on completing the course his symptoms returned a few days later. As such he was recommenced on the omeprazole long term.

What adverse effect is the patient at risk of?

A.Clostridium difficile infections

B.Hypermagnesemia

C.Hypernatremia

D.Macroscopic colitis

E.Osteomalacia

Answer:Clostridium difficile infections

Explanation:

Omeprazole can increase your risk of severe diarrhoea (Clostridium difficile infections)

Important for meLess important

Omeprazole is a proton pump inhibitor (PPI) commonly commenced to reduce gastric acid production in conditions such as gastritis. As a frequently prescribed drug, it is often thought of as having little to no adverse effects however several complications can arise from its use. The significant inhibitor of gastric acid production resulting from PPIs use can lead to the proliferation of Clostridium difficile spores, normally destroyed by the low pH. PPIs are also thought to impair gastric leukocyte function, inhibiting phagocytosis and therefore increasing the risk of Clostridium difficile establishment and infection.

Hypomagnesemia, and not hypermagnesemia, has been strongly associated with PPI use. Although the mechanism is not fully understood it is believed that PPI use results in a decrease of active magnesium (Mg2+) absorption from the intestines.

Hyponatremia, and not hypernatremia has been linked to PPI use. Again, the mechanism is unclear, but it is thought likely that PPIs induce a syndrome of inappropriate antidiuretic hormone secretion (SIADH) and may also cause interstitial nephritis resulting in sodium loss.

Microscopic, not macroscopic colitis, has recently been associated with PPI use. Theories as to the mechanism include PPIs increasing intestinal epithelial permeability, adjusting gastrointestinal bacteria growth and increasing colonocytes collagen production.

PPI use has been associated with a decrease in intestinal absorption of calcium which can result in the development of osteoporosis. Vitamin D absorption has not been shown to be affected by PPI use and therefore osteomalacia has not been associated with their use.

Question:

A 52-year-old man attends his GP regarding problems with his vision. For the past few months, he has been having some difficulty driving as he has been struggling to see cars coming toward him from the sides of his vision. He thinks this may also be what's causing his occasional headaches but reports no pain around his eyes or any current headache.

His past medical history includes peripheral vascular disease, type II diabetes, and short-sightedness, and often does not wear his glasses.

What is the most likely diagnosis?

A.Acute angle-closure glaucoma

B.Age-related macular degeneration

C.Cataracts

D.Primary open-angle glaucoma

E.Scleritis

Answer:Primary open-angle glaucoma

Explanation:

Common eye disorders affecting vision:

Macular degeneration is associated with central field loss

Primary open-angle glaucoma is associated with peripheral field loss

Important for meLess important

Primary open-angle glaucoma is correct. This causes a gradual loss of vision peripherally as is the case with this patient (struggling to see cars from the side of his vision). As well as this he has risk factors for the condition which are his diabetes and myopia (short-sightedness). The headaches are a red herring in this case, as primary open-angle glaucoma does not typically cause a headache, and the lack of a current headache suggests that the likelihood of a more sinister underlying cause is low. It can be common for those with problems with their vision to experience headaches due to eye strain as he is not wearing his glasses, which may explain this.

Acute angle-closure glaucoma is incorrect. This would present as a sudden-onset loss of vision as well as a severely painful red eye which doesn't fit this clinical picture.

Age-related macular degeneration is incorrect. This typically leads to gradual worsening of the central visual field rather than the peripheries which this patient has presented with. The main risk factors for this are advancing age and smoking.

Cataracts is incorrect. These cause generalised reduced acuity rather than solely affecting the peripheries that this patient describes. Patients often describe their vision as faded with reduced colour vision and glare (e.g. car lights appearing very bright at night), which this patient does not describe. Furthermore, on examination, the lens would appear cloudy.

Scleritis is incorrect. The patient has presented with a gradual change of vision and no pain. Whereas scleritis presents with sudden onset severe pain, especially on movement of the eye in addition to photophobia and a red eye which requires a same-day assessment by ophthalmology.

Question:

A 60-year-old woman with a T4N0M0 primary triple-negative breast carcinoma is seen in a pre-operative breast oncology clinic, where the oncologist suggests that a course of neo-adjuvant chemotherapy (NACT) would be beneficial.

Which of the following should the patient be aware of when considering whether to undergo NACT?

A.If a patient can tolerate the side-effects of NACT, then they will be able to tolerate post-surgical complications

B.NACT can induce immunomodulation, enabling cytotoxic CD8+ cells to recognise and destroy metastatic cancer cells

C.NACT reduces the rates of post-operative nausea owing to its effects on the chemoreceptor trigger zone (CTZ) in the medulla

D.NACT increases the 20-year survival rates of patients with breast cancer by 35%

E.NACT can downsize the primary tumour, meaning that breast conserving surgery can be performed instead of a mastectomy

Answer:NACT can downsize the primary tumour, meaning that breast conserving surgery can be performed instead of a mastectomy

Explanation:

A key reason for considering neo-adjuvant chemotherapy in breast cancer is to try to downsize the tumour before surgery and allow breast conserving surgery rather than mastectomy

Important for meLess important

Neo-adjuvant chemotherapy (NACT) can reduce the size of the primary tumour before surgery, and this can mean that breast conserving surgery is possible in some cases instead of a mastectomy. This is advantageous as a smaller surgical procedure – reducing peri-operative risks – and with better cosmetic outcomes for the patient1.

Both NACT and surgery have side effects, but they are not comparable with one another.

Immunomodulation is an exciting new area of breast cancer research, and some trials have shown anti-tumour immunity can be induced following cryoablation/radiotherapy and administration of immunomodulating drugs. NACT does not have this effect, however.

A common side effect of NACT is nausea.

The effect of NACT on overall survival rates has been mixed, and the main indication remains downsizing of primary tumour.

References:

1. Nice guideline NG101 (2018).

Question:

A 6-year-old boy is brought to surgery by his mother. For the past 2 months he has been complaining of pain in his shins and ankles at night-time. His symptoms are bilateral he is otherwise well. There is no family history of note. Clinical examination is unremarkable. What is the most likely diagnosis?

A.Legg-Calve-Perthes disease

B.Osteoid osteoma

C.Growing pains

D.Talipes equinovarus

E.Osteochondritis dissecans

Answer:Growing pains

Explanation:

Question:

A 46-year-old man is admitted to a respiratory ward. His chest x-ray shows patchy consolidation of the left lower lobe and blood tests reveal hyponatraemia. A urinary antigen test is positive.

He has had a productive cough and fever for the past week. Last week he returned from holiday in Spain, during which he had to spend most of the time inside, under the air conditioning, as he felt tired.

He has a 30-pack-year smoking history and rheumatoid arthritis. He takes regular prednisolone and ibuprofen and has no allergies.

What is the most appropriate treatment for this patient given the likely diagnosis?

A.Clarithromycin

B.Co-trimoxazole

C.Levofloxacin

D.Metronidazole

E.Piperacillin-tazobactam

Answer:Clarithromycin

Explanation:

Macrolides such as clarithromycin are used to treat Legionella

Important for meLess important

Clarithromycin is correct. This patient has presented with pneumonia given his respiratory symptoms and consolidation on the chest x-ray. Further, he has hyponatraemia and a positive urinary antigen test, has just been abroad where he was regularly using air-conditioning, and has a long smoking history. All of these point towards Legionella - a cause of atypical pneumonia - as the diagnosis. Legionella pneumonia, once confirmed (with a urinary antigen test), is treated with macrolides such as clarithromycin.

Co-trimoxazole is incorrect. This is a combination of sulfamethoxazole and trimethoprim, and is used to treat and prevent Pneumocystis jirovecii (also known as PCP), as well as occasionally for acute exacerbations of COPD. However, PCP is typically only seen in severely immunocompromised individuals such as those with HIV/AIDS, and this patient does not have COPD despite his smoking history. Thus, co-trimoxazole would not be an appropriate treatment.

Levofloxacin is incorrect. This can be used second-line in patients who have severe community-acquired pneumonia (CAP) and who cannot tolerate first-line treatments such as piperacillin-tazobactam. However, there is nothing to indicate that this patient could not be given piperacillin-tazobactam. Further, given the findings and this patient's history - Legionella pneumonia is the most likely diagnosis, which should be treated with clarithromycin.

Metronidazole is incorrect. This is often used to treat aspiration pneumonia, especially in patients who are allergic to penicillin and thus cannot take amoxicillin. However, there is nothing in this patient's history to suggest that he has aspiration pneumonia.

Piperacillin-tazobactam is incorrect. Piperacillin-tazobactam is used first-line in severe pneumonia and is commonly used in sepsis of unknown origin. However, it is likely that this patient has Legionella pneumonia given the recent history of travel and positive urinary antigen test. As such, narrow-spectrum antibiotics such as clarithromycin should be used instead.

Question:

Which one of the following pairs of features would be expected to occur following administration of an anticholinesterase (acetylcholinesterase inhibitor)?

A.Bradycardia and miosis

B.Bradycardia and urinary retention

C.Tachycardia and diarrhoea

D.Bradycardia and mydriasis

E.Tachycardia and lacrimation

Answer:Bradycardia and miosis

Explanation:

Organophosphate insecticide poisoning - bradycardia

Important for meLess important

A clinical example of an anticholinesterase is organophosphate compounds

Question:

A 54-year-old man with hypertension is reviewed in clinic. He complains that over the past two months he has developed ankle swelling. Which one of the following drugs is most likely to be responsible?

A.Perindopril

B.Amlodipine

C.Doxazosin

D.Moxonidine

E.Losartan

Answer:Amlodipine

Explanation:

Calcium channel blockers - side-effects: headache, flushing, ankle oedema

Important for meLess important

Question:

A 33-year-old woman who is 35 weeks pregnant presents to the Emergency Department with severe continuous abdominal pain. She had some vaginal bleeding an hour ago but this has mostly stopped now, with only a small amount of bloody discharge remaining. She is pale and clammy and obstetric examination reveals a firm, woody uterus which is very tender. Her pulse is 102bpm and her blood pressure is 98/65 mmHg. What is the most likely diagnosis?

A.Labour

B.Placenta praevia

C.Placental insufficiency

D.Placental abruption

E.Uterine rupture

Answer:Placental abruption

Explanation:

This patient has had a placental abruption. Important signs and symptoms to think about when suspecting placental abruption are:

continuous abdominal pain

shock disproportionate to the amount of blood loss (20% of placental abruptions are 'concealed' - the blood is trapped behind the placenta and does not drain)

the uterus may be in spasm and feel firm or 'woody'

the fetus may be hard to feel

the fetal heart may be hard to auscultate

Remember that most women giving birth are young and fit - they may not show signs of shock until they have lost a considerable amount of blood as they are able to compensate well.

The pain felt in labour comes in waves with each contraction. You would not expect a woody, tender uterus or low blood pressure.

Placenta praevia is another important cause of antepartum haemorrhage but is typically painless.

Uterine rupture in pregnancy is very rare and is often catastrophic. Risk factors include a scarred uterus - e.g. multiple previous caesarian sections.

Placental insufficiency means the blood flow to the placenta is insufficient for the baby to develop as it should, and can result in intrauterine growth restriction.

References and resources:

Royal College of Obstetricians and Gynaecologists: Antepartum Haemorrhage Guideline

https://www.rcog.org.uk/globalassets/documents/guidelines/gtg63.pdf

BMJ ABC of Labour Care: Obstetric Emergencies

Chamberlain G, Steer P. ABC of Labour Care: Obstetric Emergencies. BMJ (1999) 15;318(7194):13421345. https://www.rcog.org.uk/globalassets/documents/guidelines/gtg63.pdf

Patient UK - placenta and placental problems

http://patient.info/doctor/placenta-and-placental-problems

Question:

A 74-year-old man attends a GP appointment with his wife, who is concerned about his memory. Some days she finds he is perfectly fine and able to carry out his usual tasks, but on other days he is unable to focus on them. There have been episodes where he has forgotten that he was cooking and has left the hob on, so she is worried about his safety. She also mentions that he has been seeing their son walking around the house, which is unusual as their son lives in Australia.

He has a past medical history of hypertension and takes lisinopril. He has no family history of dementia or other neurological disorders. He does not drink or smoke.

From the history, what is the most cause of his cognitive impairment?

A.Alzheimer's disease

B.Depression

C.Frontotemporal dementia

D.Lewy body dementia

E.Vascular dementia

Answer:Lewy body dementia

Explanation:

Lewy body dementia typically presents with fluctuating cognition in contrast to other forms of dementia

Important for meLess important

Lewy body dementia is characterised by fluctuating cognitive impairment with attention and executive function being affected most severely. Other common features include visual hallucination, parkinsonism and REM sleep disorder. From the history, this man has:

Fluctuating cognitive impairment - his day-to-day function varies significantly

Visual hallucinations

Alzheimer's disease is a good differential for cognitive impairment in the elderly, as it is the most common cause of dementia. This would be less likely to cause significant fluctuation in cognition and would be more steady and progressive. Other common features include agnosia, apraxia and aphasia.

Depression in the elderly is often difficult to distinguish from organic causes of cognitive impairment. Attention is also commonly affected and day-to-day fluctuation could occur. One distinguishing feature in this case is visual hallucination, which would not be expected in depression. Severe depression can rarely cause psychosis, but this is more commonly auditory and congruent with mood.

Frontotemporal dementia is a rarer form of dementia most characterised by personality change and loss of inhibition in the early stages. Loss of attention is seen, but fluctuation and visual hallucinations would be unusual.

Vascular dementia is a good differential due to his history of hypertension. This would more likely present with sudden or stepwise reduction in his cognitive function and cause other areas to be affected, including focal neurological deficits, memory disturbance and speech disturbance.

Question:

A 33-year-old man presents with a two day history of the gradual onset of pain and swelling in the right testicle. The pain is described as 5/10 on the pain scale. Around four weeks ago he returned from a holiday in Spain but reports no dysuria or urethral discharge. On examination he has a tender, swollen right testicle. On examination the heart rate is 84/min and his temperature is 36.8ºC. What is the most likely underlying diagnosis?

A.Epididymo-orchitis

B.Testicular abscess

C.Epididymal cyst

D.Testicular torsion

E.Mumps

Answer:Epididymo-orchitis

Explanation:

Testicular torsion would typically cause more acute symptoms and more severe pain.

Prodromal symptoms and parotitis would be expected in a patient with mumps.

Question:

A 24-year-old man presents to you in accident and emergency after falling on his outstretched left hand. He complains of pain in his hand which is localised to the anatomical snuffbox. An x-ray was arranged 2 hours after his fall but yielded no evidence of a fracture in any of his carpal bones and he is discharged with pain relief. However, the pain persists and he returns to you 10 days later complaining that the pain is persisting and he is still experiencing extreme tenderness in the anatomical snuffbox of the left hand. Which of the following is the most likely diagnosis?

A.Colles’ fracture

B.Lunate dislocation

C.Barton’s fracture

D.Scaphoid fracture

E.Greenstick fracture

Answer:Scaphoid fracture

Explanation:

These fractures are commonly missed on x-ray because they are not evident on x-rays soon after the fall on the outstretched hand. The fracture line will be often be present several days after the fall. The patient will complain of pain in the anatomical snuffbox and describe the pain as persistent. If this fracture is not identified speedily, the risk of non-union and avascular necrosis is increased. A Colles fracture is a fracture of the distal radius and also occurs after a fall on the outstretched hand but will not present with pain in the anatomical snuffbox. Barton’s fracture is also a fracture of the distal radius but intraarticular in nature compared to Colles’. Both of these will be seen clearly on initial x-rays with no pain in anatomical snuffbox. A Greenstick fracture occurs only in children and a lunate dislocation would also be clearly seen on the initial x-ray.

Question:

A 26-year-old woman telephones her GP for advice. She is currently 7 weeks pregnant and so far has had no complications. She is a smoker and has continued to smoke during pregnancy. She understands the risk and is keen to quit - she was referred to NHS Stop Smoking Services for cognitive behavioural therapy and self-help, but these have been unsuccessful. She is now asking about medications that could help her to quit.

What should she be advised?

A.A combination of nicotine replacement therapy and bupropion may be suitable

B.Bupropion may be suitable

C.Nicotine replacement therapy may be suitable

D.These are all contraindicated during pregnancy

E.Varenicline may be suitable

Answer:Nicotine replacement therapy may be suitable

Explanation:

Pregnant women who smoke: nicotine replacement therapy should be offered, varenicline and bupropion are contraindicated

Important for meLess important

The correct answer is the use of nicotine replacement therapy (NRT). If initial steps involving cognitive behavioural therapy, motivational interviewing or structured self-help have failed, NRT may be used. With regards to patches, pregnant women should remove these before going to bed.

A combination of nicotine replacement therapy and bupropion is incorrect - bupropion is contraindicated in pregnancy and breastfeeding. It is also contraindicated in epilepsy.

Bupropion alone is therefore also incorrect, due to its contraindication during pregnancy.

Telling the patient that all methods are contraindicated during pregnancy would be incorrect - nicotine replacement therapy is a viable option and certainly better than continuing to smoke during pregnancy.

Offering varenicline would not be appropriate - like bupropion, it is also contraindicated during pregnancy and breastfeeding.

Question:

A 65-year-old male presents to the Emergency Department unconscious, brought in by his wife. She mentions that he's had two heart attacks in the past 5 years. ECG reveals broad QRS complexes (>120ms) and tachycardia (130bpm). A diagnosis of ventricular tachycardia (VT) is made.

Which of the following treatments is contraindicated in the immediate care of this patient?

A.Amiodarone

B.Aspirin

C.Lidocaine

D.Procainamide

E.Verapamil

Answer:Verapamil

Explanation:

Ventricular tachycardia - verapamil is contraindicated

Important for meLess important

Ventricular tachycardia causes cardiac output to reduce dramatically. Verapamil is the correct answer because, as a calcium channel blocker (CCB), it is contraindicated in patients with ventricular tachycardia because administration can reduce contractility of the heart even further. This can result in death. IV administration of a calcium channel blocker (like verapamil) can also precipitate cardiac arrest in such patients. Heart attacks are a common preceding condition to those presenting with VT, due to scarring of the myocardium leading to dangerous arrhythmias.

Aspirin is incorrect, as it is not contraindicated in VT.

Procainamide is incorrect, as it is an anti-arrhythmic that is used intravenously for cardioversion in the immediate management of VT, in the place of amiodarone or lidocaine.

Lidocaine, a class IB anti-arrhythmic, is incorrect, because it is commonly used in instances of VT. It is faster acting than both amiodarone and procainamide.

Amiodarone is incorrect because it is used in VT treatment with a detectable pulse.

Question:

An 80-year-old man is taken to the Emergency Department after falling at home. He manages to walk into the department but is complaining of left hip pain. His daughter notes that he fell onto his left side. An x-ray is taken of the pelvis:

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What is the diagnosis?

A.Paget's disease of the bone

B.Severe osteoarthritis

C.Left intertrochanteric fracture

D.Left subcapital fracture

E.Myeloma

Answer:Severe osteoarthritis

Explanation:

This x-ray shows advanced osteoarthritic changes at the left hip joint; loss of joint space and subchondral sclerosis are prominent.

Question:

A 24-year-old woman had just delivered her first baby. The delivery required the midwife to perform McRobert's manoeuvre due to shoulder dystocia. There were no other labour complications. After the delivery of the placenta, the midwife examined the patient and found a perineal tear which involved the external anal sphincter (EAS) but did not extend to the internal anal sphincter (IAS) or rectal mucosa.

What is the most appropriate next step in management?

A.Allow a suitably trained midwife to suture the perineal tear on the ward

B.Do not repair the perineal tear as it will most likely heal

C.Repair in theatre by a suitably trained clinician as it is a fourth degree tear

D.Repair in theatre by a suitably trained clinician as it is a second degree tear

E.Repair in theatre by a suitably trained clinician as it is a third degree tear

Answer:Repair in theatre by a suitably trained clinician as it is a third degree tear

Explanation:

Third degree perineal tears require repair in theatre by a suitably trained clinician

Important for meLess important

This patient has sustained a third degree perineal tear and requires repair in theatre by a suitably trained clinician. The tear has extended beyond the perineal mucosa and muscle, to involve the EAS but does not involve the rectal mucosa and is therefore classified as 3rd degree. Second degree tears involve the perineal muscle but do not extend into the EAS. Fourth degree tears extend beyond the IAS to involve the rectal mucosa.

It is appropriate to repair the tear in theatre, however the tear is third degree so the option repair in theatre by a suitably trained clinician as it is a fourth degree tear is incorrect.

Similarly the option repair in theatre by a suitably trained clinician as it is a second degree tear is not correct because a third degree tear is described in the scenario.

First degree tears are the only type that do not require repair so as this is a third degree tear it would not be appropriate to not repair the perineal tear as it will most likely heal.

Second degree tears can be repaired by a suitably trained midwife on the ward, but as the tear is third degree this option is not appropriate.

Question:

A 75-year-old woman has an acute loss of vision. Over the last 3 weeks, she has had bilateral headaches with associated neck and shoulder stiffness, which was worst in the morning and improved throughout the day.

Her strength and sensation are intact and her shoulder and neck ranges of motion are limited due to discomfort. The entire visual field is affected in the right eye. Fundoscopy shows optic disc pallor.

She has a history of hypercholesterolaemia and takes atorvastatin, and she smokes 20 cigarettes a day.

Given the likely diagnosis, what is the most likely underlying cause for her presentation?

A.Interruption of the venous drainage from the retina

B.Ischaemia to the anterior optic nerve

C.Ischaemia to the optic radiation

D.Ischaemia to the posterior optic nerve

E.Ischaemia to the retina

Answer:Ischaemia to the anterior optic nerve

Explanation:

Anterior ischemic optic neuropathy accounts for the majority of ocular complications in temporal arteritis

Important for meLess important

Ischaemia to the anterior optic nerve is correct. Given this patient's age and female sex, the preceding proximal muscle stiffness that is worse in the morning and improves throughout the day is highly suggestive of polymyalgia rheumatica (PMR), and the current bilateral headaches and vision loss are suggestive of giant cell arteritis (GCA). Polymyalgia rheumatica is linked with giant cell arteritis (GCA) in approximately 25% of cases. GCA can lead to vision loss and this is a result of anterior ischaemic optic neuropathy. This is thought to be due to the immune system damaging arteries supplying the optic nerve, leading to thrombus formation and occlusion, leading to the death of nerve fibres at the anterior aspect of the optic nerve. The ischaemia in the optic nerve leads to optic disc pallor.

Interruption of the venous drainage from the retina is incorrect. This could be the case if the patient presented with central retinal vein occlusion, however, fundoscopy would show widespread haemorrhages and not optic disc pallor.

Ischaemia to the optic radiation is incorrect. This would lead to homonymous quadrantanopias, which is not the case here, as the entire visual field of this patient is affected. As well as this, ischaemia to the optic radiation would not have optic disc pallor on fundoscopy.

Ischaemia to the posterior optic nerve is incorrect. Although this can cause visual field deficits, it is not as commonly seen with GCA and as well as this, would not show optic disc pallor on fundoscopy (as the posterior element of the optic nerve is affected, which is not in view). If this was left untreated, then eventually the ischaemia would affect the anterior aspect of the optic nerve, which would then show optic disc pallor. The presence of optic disc pallor rules out the ischaemia to the posterior optic nerve and makes ischaemia to the anterior optic nerve more likely.

Ischaemia to the retina is incorrect. This would be the case if the patient had central retinal artery occlusion, which would show a pale retina and a 'cherry red spot' on fundoscopy, which does not apply here.

Question:

A 53-year-old man is undergoing investigations after experiencing shortness of breath, weight loss and persistent cough with occasional haemoptysis for the past year. A chest x-ray showed opacification in the upper lobes but was not diagnostically conclusive. A high-resolution CT scan confirms the presence of pulmonary fibrosis affecting the upper lobes.

Which of the following conditions is the most likely to have caused this patient's CT findings?

A.Idiopathic pulmonary fibrosis

B.Amiodarone

C.Asbestosis

D.Tuberculosis

E.Rheumatoid arthritis

Answer:Tuberculosis

Explanation:

Tuberculosis typically causes upper zone pulmonary fibrosis

Important for meLess important

A number of conditions predominantly cause fibrosis of the upper lobes. They can be summarised with the mnemonic CHARTS:

C- Coal worker's pneumoconiosis

H - Histiocytosis/ hypersensitivity pneumonitis

A - Ankylosing spondylitis

R - Radiation

T - Tuberculosis

S - Silicosis/sarcoidosis

The other given options all typically cause lower zone fibrosis.

Question:

A 71-year-old male presents with a fractured neck of femur following a fall while getting out of the car. They are successfully managed with a dynamic hip screw, and are recovering on the ward.

He has a history of hypertension and chronic kidney disease (CKD), taking regular ramipril and amlodipine. He is normally independent at home, living with his wife. He currently smokes 15 cigarettes per day, and does not drink alcohol.

His FRAX score is calculated as 11% 10 year fracture risk, and he is investigated for secondary causes of fragility fractures. Results are below:

DEXA scan T-score: -3.1

Calcium 2.0 mmol/L (2.1-2.6)

Phosphate 1.8 mmol/L (0.8-1.4)

Parathyroid Hormone 89ng/L 10-65 ng/L

Vitamin D 10 nmol/L 25–100 nmol/L

Free thyroxine (T4) 12.1 pmol/L (9.0 - 18)

What is the most likely cause of his fragility fracture?

A.Primary hyperparathyroidism

B.Idiopathic osteoporosis

C.Secondary hyperparathyroidism

D.Primary osteomalacia

E.Tertiary hyperparathyroidism

Answer:Secondary hyperparathyroidism

Explanation:

CKD induced secondary hyperparathyroidism is a common contributing factor to fragility fractures, and all patients presenting with fragility fractures should be investigated for underlying causes

Important for meLess important

Renal dysfunction from CKD leads to a deficiency of the active form of vitamin D, which leads to hypocalcaemia. Parathyroid hormone (PTH) levels rise in response to this, giving secondary hyperparathyroidism, which leads to reduced bone mineral density, placing patients at an increased fracture risk.

Primary hyperparathyroidism causes elevated calcium levels.

Idiopathic osteoporosis is less common in men, and would not account for the elevated PTH levels.

Primary osteomalacia usually gives a low phosphate (although osteomalacia secondary to CKD may have high phosphate).

Tertiary hyperparathyroidism has a normal-high calcium level, in conjunction with an inappropriately high PTH level.

Question:

A 27-year-old man presents to the GP with a history of hip and back pain for several months. He mentions he has stiffness and pain that last around 45 minutes in the mornings, and these symptoms improve with activity. Upon performing a systemic inquiry, he reports experiencing longstanding pain on the posterior aspect of his left foot and has recently noticed getting intermittent blurry vision and pain in his right eye, especially when using his laptop or phone.

What findings are likely to be expected on examination of the chest and spine?

A.Increased chest expansion, increased lateral flexion, increased forward flexion

B.Normal chest expansion, increased lateral flexion, reduced forward flexion

C.Normal chest expansion, normal lateral flexion, normal forward flexion

D.Reduced chest expansion, normal lateral flexion, reduced forward flexion

E.Reduced chest expansion, reduced lateral flexion, reduced forward flexion

Answer:Reduced chest expansion, reduced lateral flexion, reduced forward flexion

Explanation:

Clinical findings in anylosing spondylitis include reduced chest expansion, reduced lateral flexion and reduced forward flexion (Schober's test)

Important for meLess important

This patient is presenting with a history suggesting ankylosing spondylitis, which is a type of inflammatory arthritis that causes a reduced range of movement of joints especially involving the spine and sacroiliac joints. The heel pain (Achilles tendonitis) and painful/blurry vision (anterior uveitis) that he is experiencing are also associated with ankylosing spondylitis.

Therefore examination of our patient will elicit reduced chest expansion, reduced lateral flexion and reduced forward flexion of the spine, which is the only correct option. This is because the reduced flexibility of this man's spine will decrease the ability for his chest to expand, and for his spine to flex laterally or forward.

Normal/increased chest expansion, lateral flexion or forward flexion of the spine are incorrect as his range of movement will be reduced due to the ankylosing spondylitis. Hence the other options featuring any of these are all incorrect.

Question:

A 40-year-old patient is reviewed in the urgent neurology clinic after suffering a first seizure 3 days ago. They have a past medical history of HIV. As part of a series of investigations, a brain CT is performed which shows a single lesion with homogenous enhancement. A thallium SPECT scan later demonstrates increased uptake and is therefore reported as positive.

What is the most likely cause of the patient's symptoms?

A.Cryptococcus

B.CNS lymphoma

C.CNS tuberculosis

D.HIV encephalitis

E.Toxoplasmosis

Answer:CNS lymphoma

Explanation:

HIV, neuro symptoms, single brain lesions with homogenous enhancement - CNS lymphoma

Important for meLess important

This is a difficult question and requires an understanding of the neurological complications in HIV.

The symptoms of CNS lymphoma depend on the location of the lesion. Patients may experience confusion, headaches, weakness, cranial nerve palsies, or seizures. It is a form of non-Hodgkin's lymphoma. In CNS lymphoma a CT scan will typically show a single lesion and a thallium SPECT scan will be positive.

Cryptococcus will show meningeal enhancement and cerebral oedema on CT scan. It is the most common fungal infection of the central nervous system.

CNS tuberculosis may present with a single lesion on CT scan but is far less common than CNS lymphoma in an HIV positive patient.

The CT scan for encephalitis generally demonstrates an oedematous brain. Behavioural changes are common.

In toxoplasmosis multiple lesions are often seen on CT scan and the thallium SPECT scan will be negative. Toxoplasmosis and CNS lymphoma are common differential diagnoses in patients with HIV as they represent the most common brain lesions with mass effect in this population. Treatment however is very different for the two conditions and imaging is therefore important to identify the true diagnosis.

Question:

A 35-year-old male presents to the GP with a 7-day history of fever, sore throat and muscle aches. On examination, he is visibly jaundiced, his blood pressure 130/80 mmHg, heart rate 80/min, respiratory rate 13/min, HS I + II + 0, breath sounds are vesicular and abdomen is soft but tender in the right upper quadrant with hepatomegaly. The GP orders blood tests which show:

Hb 140 g/L Male: (135-180)

Female: (115 - 160)

Platelets 220 \* 109/L (150 - 400)

WBC 11.5 \* 109/L (4.0 - 11.0)

Na+ 142 mmol/L (135 - 145)

K+ 4.0 mmol/L (3.5 - 5.0)

Urea 6.4 mmol/L (2.0 - 7.0)

Creatinine 100 µmol/L (55 - 120)

CRP 50 mg/L (< 5)

Bilirubin 80 µmol/L (3 - 17)

ALP 100 u/L (30 - 100)

ALT 500 u/L (3 - 40)

γGT 150 u/L (8 - 60)

Albumin 45 g/L (35 - 50)

What is the most likely diagnosis?

A.Acute cholecystitis

B.Ascending cholangitis

C.Autoimmune hepatitis

D.Hepatitis A

E.Pancreatic cancer

Answer:Hepatitis A

Explanation:

Hepatitis A presents with flu-like symptoms, RUQ pain, tender hepatomegaly and deranged LFTs

Important for meLess important

This patient is presenting with typical features of hepatitis: flu-like symptoms, right upper quadrant pain with tender hepatomegaly and hepatocellular liver function tests which show:

Raised bilirubin

Raised ALT/ AST

Normal or slightly raised ALP

Therefore, this makes hepatitis A the most likely answer.

Acute cholecystitis typically presents with right upper quadrant pain, which may radiate to the right shoulder and fever. It would not typically present with deranged liver function tests, which would suggest Mirizzi syndrome. Therefore, this is not the most likely diagnosis in this patient.

Ascending cholangitis typically presents with a triad of right upper quadrant pain, fever and jaundice. The most common predisposing feature is gallstones. Although this patient has fever, jaundice and right upper quadrant tenderness on palpation, the markedly elevated ALT suggests a diagnosis of hepatitis A, particularly when associated with the other features of sore throat and muscle aches.

Only 25% of autoimmune hepatitis presents with features of acute hepatitis such as fever and jaundice. Autoimmune hepatitis is most commonly seen in young females. Therefore, in this male presenting with fever, sore throat, jaundice and myalgia, hepatitis A is a more likely diagnosis.

Pancreatic cancer typically presents with painless jaundice, palpable gallbladder, dark urine, pale stools, anorexia, weight loss and epigastric pain. This patient is not presenting with any of these features, therefore this would not be a likely diagnosis.

Question:

A 65-year-old male comes in with a 12-hour history of worsening nausea and vomiting. He has also experienced increasing thirst and urination and has been feeling more fatigued. He denies fever, diarrhoea, constipation, or pain in his chest.

His medical history includes ischaemic heart disease - two years ago he had a STEMI with a stent placed in his left anterior descending artery, and a recent diagnosis of stage 3 non-small cell cancer of the lung.

On examination, he has dry mucous membranes and is noted to have tender muscles and joints.

Which of the following is expected to be found on ECG?

A.Short QT interval

B.Long QT interval

C.ST-elevation in V1-V4

D.Large T waves

E.Small T waves

Answer:Short QT interval

Explanation:

The main ECG abnormality seen with hypercalcaemia is shortening of the QT interval

Important for meLess important

This patient likely has hypercalcemia causing his thirst, urination, bone and joint pains, and fatigue, particularly on a background of non-small cell carcinoma of the lung, which is a known cause of hypercalcemia.

The long QT interval is characteristic of hypocalcemia, which presents with confusion, muscle spasms or cramps, and tingling around the mouth or in the peripheries.

Large T waves are characteristic of hyperkalemia.

Small T waves are characteristic of hypokalemia.

ST-elevation in V1-V4 would indicate a recurrent anterior myocardial infarct; however, this patient has no chest pain and this is unlikely.

Question:

Which one of the following statements regarding ankylosing spondylitis is correct?

A.Schober's test assesses reduced chest expansion

B.HLA-B27 is positive in 50% of patients

C.Achilles tendonitis is a recognised association

D.It is equally common in men and women

E.The typical age of presentation is between 40-50 years

Answer:Achilles tendonitis is a recognised association

Explanation:

Ankylosing spondylitis features - the 'A's

Apical fibrosis

Anterior uveitis

Aortic regurgitation

Achilles tendonitis

AV node block

Amyloidosis

Important for meLess important

HLA-B27 is positive in 90% of patients.

Question:

An 8-year-old boy presents to the general practitioner with his mother with a 2-day history of a rash over his legs. His mother reports that overall, her son has been unwell for 2 weeks, having had a cold before the onset of his rash.

On examination, his cardiorespiratory examination is unremarkable. He complains of generalised abdominal pain but has a soft abdomen with no guarding or palpable masses. There is a palpable purpuric rash over his lower limbs and buttocks.

Urinalysis blood ++

Given the likely diagnosis, what parameter should be frequently monitored?

A.Blood pressure

B.Coagulation profile

C.Creatine kinase

D.Stool culture

E.White cell count

Answer:Blood pressure

Explanation:

Patients with active Henoch-Schonlein purpura: blood pressure and urinanalysis should be monitored to detect progressive renal involvement

Important for meLess important

This patient has a diagnosis of Henoch-Schonlein purpura (HSP), an IgA-mediated vasculitis that is characterised by abdominal pain, arthralgia and a purpuric rash over the buttocks and lower limbs. A preceding viral illness, including a viral upper respiratory tract infection, may be seen before the onset of HSP. There is an overlap between HSP and IgA-nephropathy and, therefore, patients should have regular monitoring of their blood pressure and urinalysis to monitor for the onset or progression of renal disease (e.g. this patient has evidence of haematuria secondary to IgA nephropathy). This should continue to be monitored for 6-12 months, even if the initial readings are normal.

Coagulation profile is incorrect. Although this patient has a purpuric rash, given the presentation and clinical history the diagnosis is very likely to be HSP. Albeit when a patient presents with purpura, it is important to check the platelet count and coagulation profile, it is not a parameter that needs frequent monitoring. Rather, urinalysis and blood pressure need to be monitored to assess for renal deterioration.

Creatine kinase is incorrect. It can be used to monitor conditions such as rhabdomyolysis secondary to muscle breakdown. However, it plays no role in the management of HSP.

Stool culture is incorrect. A stool culture is needed for patients with a presentation of haemolytic uraemic syndrome that is characterised by haemolytic anaemia, thrombocytopenia and acute kidney injury. This syndrome is classically seen in children and develops following a diarrhoeal illness (thus requiring a stool culture to detect the causative pathogen e.g. Escherichia coli O157).

White cell count is incorrect. Although it would be recommended to assess the white cell count initially in patients with a purpuric rash, to differentiate severe infections such as meningococcal septicaemia, it is not a parameter that needs to be monitored. White cell count does not correlate with disease severity and is unhelpful in the monitoring of associated complications of HSP.

Question:

You have been asked to review the result of a catheter urine specimen taken from a 65-year-old man. This sample was sent off by the district nurse two days ago as the patient was complaining of back pain at the time of her visit. He was subsequently reviewed by one of your colleague GP on the following day and diagnosed with mechanical back pain. When you phone to discuss this result, you find out that he is otherwise well with no urinary symptoms or history of temperature, abdominal pain or vomiting.

His past medical history includes hypertension and benign prostate hypertrophy. He currently takes amlodipine, tamsulosin, finasteride and atorvastatin. He has a history of allergy to trimethoprim.

Urine culture Proteus mirabilis sensitive to nitrofurantoin and trimethoprim

Which of the following is the most appropriate management option?

A.Start him on a 7-days course of nitrofurantoin

B.Start him on a 3-days course of nitrofurantoin

C.Start him on a 7-days course of trimethoprim

D.Start him on a 3-days course of trimethoprim

E.Advise to monitor for symptoms of infection and give safety net advice

Answer:Advise to monitor for symptoms of infection and give safety net advice

Explanation:

Do not treat asymptomatic bacteria in catheterised patients

Important for meLess important

The correct answer is 'advise to monitor for symptoms of infection and give safety net advice'. The NICE guideline recommends not to treat asymptomatic bacteria in catheterised patients.

The patient has a history of allergy to trimethoprim so any answers containing trimethoprim are therefore inappropriate.

If treatment is indicated, the recommended duration of treatment is 7 days.

Question:

A 58-year-old woman with known breast cancer is admitted to hospital complaining of severe headache, nausea and vomiting. A CT head scan shows hypodense lesions within the brain with surrounding vasogenic oedema. Her only current medication is tamoxifen.

Which of the following medications would be most appropriate to prescribe for her symptoms?

A.Dexamethasone

B.Intravenous (IV) mannitol

C.Metoclopramide

D.Ondansetron

E.Oramorph

Answer:Dexamethasone

Explanation:

Headache caused by raised intracranial pressure due to brain cancer (or metastases) can be palliated with dexamethasone

Important for meLess important

The correct answer is 'dexamethasone'.

The lesions present on this patient's CT scan are likely to be cerebral metastases. These are likely to be the cause of this patient's symptoms due to raised intracranial pressure. Dexamethasone is the medication that is usually prescribed to help relieve these symptoms.

IV mannitol can be prescribed to treat raised intracranial pressure, but would not be used for cerebral metastases.

Metoclopramide is an antiemetic that mainly acts as a dopamine antagonist (it also has some activity as a serotonin antagonist). It is often prescribed for nausea and vomiting related to reduced gastric motility.

Ondansetron is an antiemetic that acts as a serotonin (5-HT3) antagonist. It is usually prescribed for chemotherapy-related nausea and vomiting.

Oramorph is a fast-acting opioid painkiller. This patient may require this as part of her ongoing symptom management, but it is less appropriate for her current symptoms than dexamethasone.

Question:

A 53-year-old man comes in asking for a prostate-specific antigen (PSA) test as his brother has recently been diagnosed with prostate cancer. You conduct a digital rectal examination and advise him that his prostate does not feel enlarged.

After further discussion, you agree to do the test.

Which one of the following is true regarding timing for PSA testing and ensuring that a reliable result is obtained?

A.PSA testing can be done within 2 weeks following a prostate biopsy

B.PSA testing can be done after abstaining from ejaculation or vigorous exercise for 48 hours

C.PSA testing can be done after abstaining from ejaculation or vigorous exercise for 12 hours

D.PSA testing can be done within 1 week following a urinary tract infection

E.PSA testing can be done after abstaining from ejaculation or vigorous exercise for 24 hours

Answer:PSA testing can be done after abstaining from ejaculation or vigorous exercise for 48 hours

Explanation:

NICE advise that, as PSA levels may be increased, testing should not be done within at least:

6 weeks of a prostate biopsy

4 weeks following a proven urinary infection

1 week of digital rectal examination

48 hours of vigorous exercise

48 hours of ejaculation

Question:

A 65-year-old man is referred to the care of the elderly clinic with a three-month history of recurrent falls.

On examination, there is bradykinesia, rigidity and a shuffling gait. He has hypomimia.

Which of the following listed clinical features is most characteristic of the idiopathic form of this condition?

A.Asymmetric tremor

B.Postural hypotension

C.Symmetrical tremor

D.Vertical gaze palsy

E.Visual hallucinations

Answer:Asymmetric tremor

Explanation:

Asymmetrical symptoms suggests idiopathic Parkinson's

Important for meLess important

Asymmetric tremor is correct. The patient has features of Parkinsonism (bradykinesia, rigidity, shuffling gait and hypomimia). From the options listed, an asymmetric tremor is most suggestive of the idiopathic form of Parkinsonism.

Postural hypotension is incorrect. While this can occur in idiopathic Parkinsonism it is also a cardinal feature of multiple system atrophy, which is a Parkinson's plus syndrome.

Symmetrical tremor is incorrect. This is more suggestive of drug-induced Parkinsonism.

Vertical gaze palsy is incorrect. This is suggestive of progressive supranuclear palsy, which is another Parkinson's plus syndrome.

Visual hallucinations are incorrect. While this can occur in Parkinson's syndrome, if it occurs early in the course of a Parkinson's syndrome then it is more suggestive of Lewy body dementia.

Question:

A 45-year-old man visits his GP with a 1-week history of intermittent headaches. He describes sudden bursts of intense pain around the left side of his head and face, particularly his left eye that lasts for 15-20 minutes at a time. Following each episode, his eye is red and watering. There have been approximately 6 attacks in the past week.

He drinks 10-12 units of alcohol per week and smokes 5-10 cigarettes a day. There is no other past medical history of note and he has no allergies.

Given the likely diagnosis, what is the most appropriate long-term prevention of further headaches?

A.Amitriptyline

B.Oxygen therapy

C.Propranolol

D.Sumatriptan

E.Verapamil

Answer:Verapamil

Explanation:

Episodic, intense, unilateral eye pain, lacrimation, restless → ?cluster headache

Important for meLess important

Verapamil is correct. This patient has a presentation in keeping with a cluster headache given the intermittent 'clusters' of intense headaches that consist of unilateral head and facial (particularly eye) pain associated with eye redness and lacrimation. Men are more commonly affected and triggers can include smoking and alcohol. Oxygen therapy can be used in the treatment of acute attacks. However, verapamil is indicated in the prophylaxis of further episodes.

Amitriptyline is incorrect. This is used in the prophylaxis of migraines. Migraines can present similarly to this patient with a unilateral headache. However, they tend to last for longer and can be associated with different symptoms including nausea, photophobia and phonophobia.

Oxygen therapy is incorrect. This is used in the management of an acute cluster headache. However, the question is asking for the most appropriate long-term prevention for which verapamil is the correct answer.

Propranolol is incorrect. This is used in the prophylaxis of migraines and plays no role in the prevention of cluster headaches.

Sumatriptan is incorrect. This is used in the acute management of migraines but plays no role in the management of cluster headaches and would, therefore, be inappropriate.

Question:

A 45-year-old male with a history of heavy alcohol intake presents with acute onset epigastric pain radiating to the right side. On examination his sclera are yellow and his abdomen is tender in the right upper quadrant with localised guarding.

Observations are: Heart rate 95/min, blood pressure 80/50 mmHg, saturation 99% on 2L, temperature 39.5ºC, Glasgow coma score 14/15 (confused speech).

Which of the following diagnoses would explain this set of signs and symptoms?

A.Cholecystitis

B.Pancreatitis

C.Gallbladder empyema

D.Ascending cholangitis

E.Perforated peptic ulcer

Answer:Ascending cholangitis

Explanation:

Charcot's cholangitis triad: fever, jaundice and right upper quadrant pain

Important for meLess important

Reynolds Pentad (jaundice, right upper quadrant pain, fever/rigors, shock and altered mental status) is associated with ascending cholangitis. This patient would need adequate resuscitation before further investigation of biliary tree with USS/MRCP for common bile duct stones +/- ERCP.

Question:

A 34-year-old man attends with a fever. There are no localising features on systematic enquiry or examination. He recently completed chemotherapy for Hodgkin's lymphoma. Observations are as follows: heart rate 110 beats per minute, respiratory rate 16 breaths per minute, blood pressure 125/75 mmHg, oxygen saturation 97% on air, and temperature 38.5ºC. The patient has a PICC line in situ.

Blood results are as follows:

Neuts 0.4 \* 109/L (2.0 - 7.0)

The microbiologist calls the following day to advise that an organism has grown from peripheral blood cultures.

What organism has most likely been cultured?

A.Candida albicans

B.Enterococcus faecium

C.Pseudomonas aeruginosa

D.Staphylococcus aureus

E.Staphylococcus epidermidis

Answer:Staphylococcus epidermidis

Explanation:

Coagulase-negative, Gram-positive bacteria such as Staphylococcus epidermidis are the most common cause of neutropenic sepsis

Important for meLess important

Staphylococcus epidermidis is correct. Coagulase-negative, gram-positive bacteria are the most common cause of neutropenic sepsis. This is most likely a consequence of the use of indwelling lines in this cohort of patients.

Candida albicans is incorrect. Systemic candidiasis is an important complication in neutropenic patients and those undergoing treatment for cancer. This infection has increased persistently over the past three decades and represents a significant cause of morbidity and mortality among high-risk individuals. However, it is much rarer in comparison to gram-positive bacteraemias.

Enterococcus faecium is incorrect. A progressive increase in infections with multi-drug resistant Enterococcus faecium (e.g. vancomycin resistance Enterococcus) has been reported, especially in cancer patients and neutropenic patients. This is potentially driven by selection pressures from broad-spectrum antibiotic use. However, it remains a relatively rare cause of bacteraemias in comparison to Staphylococcus epidermidis.

Pseudomonas aeruginosa is incorrect. Pseudomonas aeruginosa has historically been one of the major causes of severe sepsis and death among neutropenic cancer patients. Therefore all patients with prolonged neutropaenia should be on a prophylactic antibiotic which has anti-Pseudomonal cover (e.g. ciprofloxacin). However, this type of infection is very rare in comparison to Staphylococcus epidermidis.

Staphylococcus aureus is incorrect. This is another common cause of infections in neutropenic patients, again most likely secondary to indwelling lines. However, it is less common than coagulase-negative gram-positive infections.

Question:

A 43-year-old man presents to the emergency department complaining of nausea, vomiting, headache, and severe pain in his eye. He has no significant past medical history and is not on any regular medication. On examination his eye is red, the pupil is fixed and dilated and the cornea has a hazy appearance.

What can be used in the initial management of this condition?

A.Artificial tears

B.Cyclopentolate

C.Pan-retinal photocoagulation laser

D.Peripheral iridotomy

E.Timolol

Answer:Timolol

Explanation:

A combination of eye drops is often used in the initial emergency medical management of acute angle-closure glaucoma

Important for meLess important

This patient has symptoms of acute angle-closure glaucoma, for which the initial management tends to be the use of a combination of drugs, typically a beta-blocker or muscarinic receptor agonist is given in the form of eye drops, an oral carbonic anhydrase inhibitor like acetazolamide and analgesia. Timolol is a beta-blocker that is used which reduces the production of aqueous humour, thus reducing intraocular pressure. Another example is pilocarpine, a muscarinic receptor agonist which causes contraction of the ciliary muscle, opening the trabecular meshwork and increasing the outflow of aqueous humour.

Artificial tears are used to relieve dryness and irritation, commonly prescribed in ocular conditions like keratoconjunctivitis sicca and autoimmune disorders such as Sjogren's syndrome. There is no dryness of the eye in acute angle-closure glaucoma so this would not be appropriate and would not have a therapeutic effect.

Cyclopentolate is a muscarinic receptor antagonist which can cause glaucoma in some patients, this should not be used in patients with suspected acute angle-closure glaucoma as it will exacerbate their condition.

Pan-retinal photocoagulation laser is most commonly used in proliferative diabetic retinopathy and is the use of lasers to manage new blood vessel formation on the retina. It has no role in acute angle-closure glaucoma.

Peripheral iridotomy is the use of a laser to create a small hole in the iris allowing the aqueous humour to travel directly from the posterior to the anterior chamber and out through the usual pathway. This is performed in acute angle-closure glaucoma but it is not the initial management, it is the definitive management and is usually performed bilaterally due to the likelihood of occurrence in the contralateral eye.

Question:

While caring for a patient on the ward with a suprabulbar palsy you are communicating via blinking of the eyes. He now requires to have a PEG tube fitted and you take him down to endoscopy for this. However, the nurses claim he cannot communicate so cant give consent for the procedure, what do you do?

A.Accept their opinion, they may be more experienced in gaining consent than you are

B.Explain to them that he is communicating via blinking, go back to your ward and get you consultant to contact the endoscopy to confirm this

C.Accept their opinion, take the patient back to the ward and document it in their notes

D.Accept their opinion, take the patient back to the ward and insert a fresh nasogastric tube

E.Explain to them that he is communicating via blinking and offer to assist in gaining consent

Answer:Explain to them that he is communicating via blinking and offer to assist in gaining consent

Explanation:

The GMC good medical practice guidelines on consent states; 'You should check whether the patient needs any additional support to understand information, to communicate their wishes, or to make a decision.'

Accepting the nurses view is inadequate, although they may have taken consent more times than you, this patient does have an effective way to communication and you have a duty to do everything you can to maximise this. Involving your consultant at this stage may be a little too much.

Question:

A 16-year-old woman presents to the clinic, as her periods have not yet started. On examination, her height is below the 3rd centile. She has passed through adrenarche but has absent thelarche. Her mother and sister both started menarche aged 12 years. Blood results are shown below:

FSH 60 IU/L (0-10)

LH 40 IU/L (0-16)

Oestradiol 6.4 pmol/L (73-407)

Thyroid stimulating hormone (TSH) 5.0 mU/L (0.5-5.5)

Free thyroxine (T4) 12 pmol/L (9.0 - 18)

Prolactin 323 mIU/L (<700)

Given the patient's presentation and blood results, what is the most likely cause of her amenorrhoea?

A.Asherman’s syndrome

B.Constitutional delay

C.Hypothalamic hypogonadism

D.Polycystic ovarian syndrome

E.Turner's syndrome

Answer:Turner's syndrome

Explanation:

Short stature + primary amenorrhoea ?Turner's syndrome

Important for meLess important

Turner's syndrome is the correct answer. This woman has absent breast development (thelarche) and absent periods at the age of 16. Puberty is considered delayed when women have not begun thelarche by 13 or menarche by 15. These factors in addition to being of short stature raise suspicion of Turner's syndrome. Many patients with Turner's syndrome develop primary ovarian failure, as in this case where thelarche has not occurred and FSH and LH are at menopausal levels, with low oestradiol levels. FSH levels at menopause are ≥30 IU/L. Primary ovarian failure develops because the absence of a second normal X chromosome leads to the loss of follicles and therefore loss of normal oestrogen and progesterone production. Such females will require oestrogen (and later progesterone) therapy ideally at age 11-12 to maximise growth. Hyperprolactinaemia and hypo/hyperthyroidism can cause primary or secondary amenorrhoea, but levels are normal here. Hypothyroidism is associated with Turner's syndrome, so thyroid function should be checked.

Asherman's syndrome is incorrect. This is a cause of secondary, not primary amenorrhoea. It occurs when intra-uterine adhesions form as a result of trauma due to dilatation and curettage for miscarriage or abortion or by endometrial ablation as a treatment for menorrhagia.

Constitutional delay is incorrect. Though teenagers with constitutional delay can be short, due to delays in their growth spurt, this female has very high FSH and LH levels in the menopausal range, which would not be seen in constitutional delay. In addition, the constitutional delay is very rare in females compared to males. Constitutional delay tends to run in families, which is not the case here, though this is not always present.

Hypothalamic hypogonadism is incorrect. Though also a cause of primary amenorrhoea, patients will have low FSH, LH and oestradiol levels due to low GnRH production by the hypothalamus. It is usually due to low weight, excess exercise and psychological factors.

Polycystic ovarian syndrome is incorrect. Females with this condition will have normal thelarche but may have primary or secondary amenorrhoea or oligomenorrhoea. LH levels are classically 2-3 times FSH levels and neither FSH nor LH levels will be at menopausal levels, unlike in this female patient.

Question:

A 75-year-old man presents with difficulty breathing at night, occasional palpitations and tight chest pain. On examination, he has a collapsing pulse and a laterally shifted apex beat. You also notice his head bobs in time with his pulse.

What would you expect to hear on auscultation of the precordium?

A.A pansystolic murmur

B.An ejection systolic murmur

C.A continuous 'machinery' murmur

D.A late diastolic murmur

E.An early diastolic murmur

Answer:An early diastolic murmur

Explanation:

Aortic regurgitation typically causes an early diastolic murmur

Important for meLess important

This is a presentation of aortic regurgitation, including Corrigan's pulse and De Musset's sign.

A pansystolic murmur is associated with mitral regurgitation.

An ejection systolic murmur is associated with aortic stenosis.

A continuous 'machinery' murmur is associated with a patent ductus arteriosus.

A late diastolic murmur is associated with mitral stenosis.

Question:

A 35-year-old woman presents to the emergency department with abdominal pain. She has a past medical history of Crohn's disease, type I diabetes and depression. She appears unwell, is febrile (temperature 38.1 ºC) and has a blood pressure of 95/60 mmHg.

As part of the initial management of this patient, an arterial blood gas (ABG) is performed.

pH 7.30 (7.35-7.45)

PaCO2 5.20 kPa (4.5-6.0)

PaO2 11.0 kPa (10-14)

HCO3- 18.0 mEq/L (22-26)

Anion Gap 10.0 mEq/L (<11.0)

Based on the ABG results, which of the following is the most likely cause of her acidosis?

A.Vomiting

B.Diabetic ketoacidosis

C.Septic shock

D.Diarrhoea

E.Methanol poisoning

Answer:Diarrhoea

Explanation:

Diarrhoea can cause a normal anion gap acidosis whereas vomiting causes alkalosis

Important for meLess important

The ABG shows a metabolic acidosis (low HCO3, normal CO2) with a normal anion gap.

Diarrhoea causes a normal anion gap metabolic acidosis because the gastrointestinal loss of bicarbonate causes a reciprocal increase in serum chloride.

Vomiting causes an alkalosis, as gastric secretions (which are very acidic) are lost.

Septic shock, diabetic ketoacidosis and methanol poisoning are all valid differentials from the history. However, they typically cause a raised anion gap metabolic acidosis because they lead to the generation of an anion that is not including in the calculation of anion gap. Septic shock causes a rise in lactic acid, diabetic ketoacidosis causes a rise in ketones and methanol poisoning causes a rise in formic acid. For this reason, they are less likely here as the anion gap is normal.

Question:

Which vaccines do young people usually receive between the ages of 13 - 18 years?

Key

DTaP = Diphtheria, Tetanus, acellular Pertussis vaccine

IPV = Inactivated Polio Vaccine

Hib = Haemophilus influenzae B vaccine

PCV = Pneumococcal Conjugate Vaccine

Men C = Meningococcal C vaccine

MMR = Measles, Mumps, Rubella vaccine

DT = Diphtheria, Tetanus vaccine

A.Hib + Men C

B.Tetanus/diphtheria/polio + Hib

C.Tetanus/diphtheria/polio + Men ACWY

D.IPV + Hib

E.Tetanus/diphtheria/polio + Men C

Answer:Tetanus/diphtheria/polio + Men ACWY

Explanation:

13-18 years immunisations: DT + IPV + Men ACWY

Important for meLess important

Question:

A 17-year-old male with a history of cystic fibrosis presents to clinic for annual review. What is the most appropriate advice regarding his diet?

A.High calorie and low fat with pancreatic enzyme supplementation for every meal

B.High calorie and low fat with pancreatic enzyme supplementation for evening meal

C.Normal calorie and low fat with pancreatic enzyme supplementation for every meal

D.High calorie and high fat with pancreatic enzyme supplementation for evening meal

E.High calorie and high fat with pancreatic enzyme supplementation for every meal

Answer:High calorie and high fat with pancreatic enzyme supplementation for every meal

Explanation:

Please see the link for more details.

Question:

A 52-year-old man is admitted to the Emergency Department after a 999 call. Around one hour ago he suddenly developed the sensation of 'an elephant sitting on his chest'. He has been sick and tells staff he thinks he's going to die. His ECG is shown below:

© Image used on license from Dr Smith, University of Minnesota

A loading dose of aspirin and clopidodrel are given. He is also given sublingual glyceryl trinitrate and intravenous morphine for pain relief. What is the best next step in management?

A.Same-day coronary artery bypass graft

B.Synchronised DC cardioversion

C.Give low-molecular weight heparin and do a troponin level in 5 hours

D.Immediate thrombolysis

E.Immediate percutanous coronary intervention

Answer:Immediate percutanous coronary intervention

Explanation:

Primary percutaneous coronary intervention is the gold-standard treatment for ST-elevation myocardial infarction

Important for meLess important

The ECG shows an anterolateral ST elevation myocardial infarction. There are also some reciprical changes in the inferior leads (ST depression in II, III and aVF). If percutanous coronary intervention were not available the next best option is immediate thrombolysis.

Question:

What is the most common cause of childhood hypothyroidism in the United Kingdom?

A.Iodine deficiency

B.Autoimmune thyroiditis

C.Follicular thyroid cancer

D.Post total-body irradiation

E.Grave's disease

Answer:Autoimmune thyroiditis

Explanation:

Question:

A 56-year-old Afro-Caribbean man visits his general practitioner for a follow-up appointment. He had previously been asked to complete regular ambulatory blood pressure checks since his last appointment detected a blood pressure of 155/90mmHg. During this time, he reports having been feeling well with no symptoms. His past medical history includes type 2 diabetes and gout.

His serial ambulatory blood pressure readings are as follows:

Monday 154/89mmHg

Tuesday 161/70mmHg

Wednesday 145/75mmHg

Thursday 153/77mmHg

Friday 168/81mmHg

What is the next best step in the management of this patient?

A.Amlodipine

B.Bendroflumethiazide

C.Candesartan

D.Doxazocin

E.Labetolol

Answer:Candesartan

Explanation:

An angiotensin II receptor blocker should be used first-line for black TD2M patients who are diagnosed with hypertension

Important for meLess important

Candesartan is correct. This patient's ambulatory blood pressure readings are persistently raised, in keeping with a diagnosis of hypertension. In patients with diabetes mellitus, the target ambulatory blood pressure for patients < 80 years is 135/85mmHg. The anti-hypertensive treatment of choice for an Afro-Caribbean patient with a background of T2DM is with an ACE inhibitor or angiotensin II receptor blocker such as candesartan.

Amlodipine is incorrect. This is a calcium channel blocker that is used first-line for the management of hypertension in Afro-Caribbean patients and those aged above 55 years in those without diabetes. However, patients with diabetes and hypertension should be treated with an ACE inhibitor or angiotensin II receptor blocker.

Bendroflumethiazide is incorrect. This is a second or third-line agent in the management of blood pressure and would not be started in the first instance.

Doxazocin is incorrect. This agent is generally used much later in the management of patients with hypertension and would not be commenced as the first line.

Labetolol is incorrect. This agent is generally used much later in the management of patients with hypertension and would not be commenced as the first line.

Question:

A 58-year-old man is admitted to the respiratory ward with a suspected pulmonary embolus. He was tachycardic and tachypnoeic with saturations of 92% on 6L of oxygen. Within half an hour into his admission, he became unresponsive and cardiopulmonary resuscitation was started. After the first cycle of chest compressions, the defibrillator shows sinus rhythm. However, there are no palpable central pulses.

What is the immediate next step in the management of this patient?

A.Adrenaline 10mL 1:1000

B.Adrenaline 10mL 1:10000

C.Alteplase 50mg

D.Unsynchronised 150J shock

E.Amiodarone 300mg

Answer:Adrenaline 10mL 1:10000

Explanation:

Recommend Adult Life Support (ALS) adrenaline doses

anaphylaxis: 0.5mg - 0.5ml 1:1,000 IM

cardiac arrest: 1mg - 10ml 1:10,000 IV or 1ml of 1:1000 IV

Important for meLess important

This patient’s rhythm demonstrated on the defibrillator is pulseless electrical activity (PEA). It is a non-shockable rhythm and therefore adrenaline should be given immediately. The cardiac arrest dose of adrenaline is 1mg 1:10000.

Adrenaline 1mg 1:1000 is incorrect. Although the dose of 1mg is correct, a 1:1000 preparation is not what is used in a cardiac arrest. A 500 microgram 1:1000 dose is used in the treatment of anaphylaxis.

Alteplase can be given if a massive pulmonary embolus is expected. However, adrenaline takes priority during a cardiac arrest scenario.

An unsynchronised 150J shock would be the next correct step if this patient was in a shockable rhythm such as pulseless ventricular tachycardia or ventricular fibrillation. However, this patient’s rhythm is PEA making adrenaline the correct choice.

Amiodarone is given in a shockable rhythm after the 3rd shock irrespective if the shocks are successive or interrupted. A further dose of 150mg can be considered after a total of 5 defibrillation attempts. However, it has no role in the non-shockable algorithm.

Question:

A 33-year-old man who undergoes peritoneal dialysis attends the emergency department with a 2-day history of abdominal pain, nausea, vomiting and fevers. He also noted his dialysis solution was more cloudy when it was last changed.

On examination, his abdomen is generally tender and he is febrile at 39.3ºC.

His blood tests are shown below:

Hb 136 g/L Male: (135-180)

Female: (115 - 160)

Platelets 389 \* 109/L (150 - 400)

WBC 13.9 \* 109/L (4.0 - 11.0)

CRP 221 mg/L (< 5)

A chest x-ray is performed which shows no focal consolidation, and a urine dip is clear.

What is the most likely causative organism of his symptoms?

A.Escherichia coli

B.Mycoplasma pneumoniae

C.Pseudomonas aeruginosa

D.Staphylococcus epidermidis

E.Streptococcus pyogenes

Answer:Staphylococcus epidermidis

Explanation:

Coagulase-negative Staphylococcus is the most common cause of peritonitis secondary to peritoneal dialysis

Important for meLess important

Staphylococcus epidermidis is correct, this is a coagulase-negative Staphylococcus found on the skin. It is a common cause of peritonitis in those undergoing peritoneal dialysis.

Escherichia coli is incorrect. Escherichia coli is the most common cause of urinary tract infections and spontaneous bacterial peritonitis in those with ascites.

Mycoplasma pneumoniae is incorrect. This is a cause of atypical pneumonia, and classically causes bilateral consolidation on the chest x-ray.

Pseudomonas aeruginosa is incorrect. Pseudomonas aeruginosa is a common cause of infective exacerbations in bronchiectasis and cystic fibrosis.

Streptococcus pyogenes is incorrect. This is a beta-haemolytic group A streptococcus that can cause a variety of infections including cellulitis, necrotising fasciitis and scarlet fever.

Question:

A 65-year-old man attends the practice with a swelling in his groin. On examination, there is a single soft, non-tender lump superomedial to the pubic tubercle on the right side. There is a positive cough impulse and bowel sounds are heard on auscultation. There is no testicular swelling and palpation of the scrotum is normal. The general practitioner is able to reduce the lump.

What should the general practitioner do next in the clinical examination to ascertain the anatomy and subtype of this swelling?

A.Ask the patient to cough

B.Ask the patient to lie down

C.Measure the size of the lump

D.Press on the deep inguinal ring and ask the patient to cough

E.Press on the superficial inguinal ring and ask the patient to cough

Answer:Press on the deep inguinal ring and ask the patient to cough

Explanation:

After reducing the hernia, indirect hernia can be controlled by applying pressure over the deep inguinal ring

Important for meLess important

This patient has an inguinal hernia which is typically above and medial to the pubic tubercle. An appreciation of the anatomical differences between a direct and indirect hernia can help to distinguish between the two with a clinical examination. Recall that a direct hernia involves a defect in the posterior wall of the inguinal canal, causing abdominal contents to directly enter the canal. In contrast, in an indirect hernia, abdominal contents enter the canal through the deep inguinal ring. Hence, applying pressure on the deep ring can control an indirect hernia. On examination, first manually reduce the hernia, then apply pressure over the deep inguinal ring and ask the patient to cough. If a hernia reappears it is more likely to be a direct inguinal hernia whereas if it does not, it is more likely to be an indirect inguinal hernia.

Asking the patient to cough might make the hernia more pronounced but would not tell you further information.

Equally, asking the patient to lie down might reduce the hernia but not inform of much else aside from the fact that it is easily reducible.

Measuring the size of the lump might be useful to know, however management is guided by symptoms, not size.

Pressing on the superficial inguinal ring while the patient coughs will not help to distinguish between a direct or indirect hernia as neither entrance into the inguinal canal is being controlled (i.e. either the deep inguinal ring or posterior wall of the inguinal canal) and so the hernia will appear anyway.

Question:

You are a doctor working in general practice. A 32-year-old electrician attends presents complaining of shooting pains down his left leg. They have been present for the past 3 weeks and are increasing in intensity. He has no past medical history and takes no regular medications. Over the counter analgesia has failed to improve his pain.

On examination he has normal power in both his legs but altered sensation over the great toe on his left. He has normal perianal sensation and no urinary symptoms.

You arrange an MRI scan of his lumbar spine which demonstrates the following:

MRI Lumbar and Sacral Spine Normal alignment and segmentation.

There is a small left para-central L4/5 disc prolapse causing compression of the transiting L5 nerve root. There is no compression of the cauda equina with CSF visible around all nerve roots.

All other discs are normal and there are no bony abnormalities visible.

What is the most appropriate next step in managing this patient?

A.Reassure and discharge with no follow-up

B.Emergency admission to neurosurgery

C.Start treatment with regular oxycodone

D.Start treatment with NSAIDs and refer for physiotherapy

E.Routine outpatient referral to neurosurgery

Answer:Start treatment with NSAIDs and refer for physiotherapy

Explanation:

A referral for sciatica is appropriate after 4-6 weeks of conservative treatment (analgesia and physiotherapy) has failed

Important for meLess important

This man is presenting with sciatica along the L5 distribution caused by a small disc prolapse. There are no features in the clinical history or on the MRI scan which suggest a need for an urgent referral (no bladder/bowel symptoms, no weakness and no cauda equina compression seen on imaging). The duration of symptoms is less than 4 weeks and conservative management has not been attempted yet so this should be the first-line management at this point in time. This comprises a trial of NSAIDs and physiotherapy. Approximately 90% of cases of sciatica settle within 3 months with conservative management and it is rare to actually need a referral to specialist services.

If the pain has failed to settle after 4-6 weeks of physiotherapy and anti-neuropathic agent treatment then it would be sensible to consider referring routinely to spinal surgery. Usually if the pain has not settled within this period, the patient will need an intervention to treat their pain such as an injection or an operation.

Reassurance and discharge would be inappropriate given the small risk of worsening of symptoms and progression to cauda equina syndrome. All patients with nerve root compression should be given red-flag advice for cauda equina syndrome and advised to attend the emergency department if they develop any of the following:

Peri-anal or saddle sensory change

Difficulty passing urine

Symptoms affecting both legs

Treatment with opiates is inappropriate and unlikely to be of any benefit in neuropathic pain and will simply give the patient a dependence issue. Given his age, a more appropriate and effective general analgesic would be a non-steroidal anti-inflammatory drug (NSAID) such as naproxen.

Question:

A 44-year-old woman attends her GP surgery complaining of hearing loss in her right ear. She has noticed this getting worse for the last 3 months. She also complains of a ringing sound in her ear constantly. You organise audiometry which shows right-sided sensorineural hearing loss.

Given the likely diagnosis, which imaging is likely to be diagnostic?

A.X-ray head

B.CT head

C.MRI of cerebellopontine angle

D.Otoscopy

E.Doppler ultrasound

Answer:MRI of cerebellopontine angle

Explanation:

Acoustic neuromas are best visualized by MRI of the cerebellopontine angle

Important for meLess important

Acoustic neuroma (vestibular schwannoma) is a primary intracranial tumour. It is benign but can cause symptoms by affecting the vestibulocochlear nerve.

X-ray and CT scan imaging are not adequate for diagnosis. Otoscopy would not be able to visualise any pathology as an acoustic neuroma would be behind the tympanic membrane. Doppler ultrasound is not used for imaging the ear/head.

Question:

A 62-year-old female presents to her general practitioner with a 2-month history of fatigue and poor concentration. She finds herself getting shortness of breath when walking to the shop, which previously did not cause her any issues. On examination, she is noted to be pale, cardiorespiratory and neurological examination is unremarkable. She has blood tests sent which show:

Hb 102 g/L Male: (135-180)

Female: (115 - 160)

Platelets 161\* 109/L (150 - 400)

WBC 4.0 \* 109/L (4.0 - 11.0)

Blood film hypersegmented polymorphs

Vitamin B12 120 ng/L (>200)

Folate 1 ng/mL (2-10)

What is the most appropriate management (out of those listed) for this patient?

A.Urgent referral to haematology

B.Urgent referral to hospital for CT head

C.B12 replacement - intramuscular replacement

D.B12 replacement - oral replacement

E.Folate replacement intramuscularly prior to B12 replacement

Answer:B12 replacement - intramuscular replacement

Explanation:

Vitamin B12 deficiency is typically managed intramuscular B12 replacement, a loading regime followed by 2-3 monthly injections

Important for meLess important

This patient has vitamin B12 and folate deficiency.

Symptoms: fatigue, poor concentration, and pallor are common

Bloods: her blood tests confirm this picture (anaemia, low B12, low folate, and hypersegmented polymorphs on blood film). There may also be thrombocytopenia in these patients - this is due to vitamin B12 acting as a co-factor during the synthesis phase of the cells in the bone marrow.

Examination: although her neurological examination is unremarkable, patients may present with peripheral neuropathy and ataxia.

This patient does not warrant urgent referral as she does not have any neurological symptoms and is not pregnant. NICE guidelines advise urgent referral if the patient has loss of cutaneous sensation, muscle weakness, optic neuropathy, psychiatric disturbance, symmetrical neuropathy, or urinary or faecal incontinence.

Referral to haematology should be considered also if the patient has a suspected haematological malignancy or blood disorder, the patient fails to respond to treatment, or mean cell volume is persistently > 105 femtolitres. Referral to gastroenterology should be made if the patient is suspected to have a malabsorption syndrome, gastric cancer, or has pernicious anaemia with GI symptoms.

The patient does not fulfil criteria for CT head and, as such, this answer is incorrect.

The recommendation of IM over oral replacement of B12 is outlined in the NICE guidelines. Some randomised control trials point to IM replacement being superior to oral and this is still the preferred route of administration as per guidelines.

Vitamin B12 replacement should always occur prior to folate replacement as folate replacement prior to B12 can precipitate subacute combined degeneration of the spinal cord.

Question:

A 70-year-old man presents with dizziness which started yesterday while he was out shopping. He describes it as a spinning sensation but denies any episodes of vomiting or severe nausea. On further questioning, he acknowledges that his hearing in his left ear has deteriorated over the past 8 months but attributed this to ageing.

On examination, he is noted to have no focal neurological deficits and no nystagmus is elicited. Hearing tests are performed which show:

Rinne's test (right side) air conduction > bone conduction

Rinne's test (left side) air conduction > bone conduction

Weber's test lateralisation to right

What is the likely cause of his symptoms out of the options listed?

A.Acoustic neuroma

B.Left conductive hearing loss

C.Menière's disease

D.Presbyacusis

E.Right conductive hearing loss

Answer:Acoustic neuroma

Explanation:

Sensorineural hearing loss

Rinne result: Air conduction > bone conduction bilaterally

Weber result: Lateralises to unaffected ear

Important for meLess important

Acoustic neuroma causes a sensorineural hearing loss associated with dizziness and unilateral sensorineural hearing loss. Patients will develop neurological symptoms as the tumour grows. Neurological symptoms can be predicted by the affected cranial nerves:

Cranial nerve VIII: hearing loss, vertigo, tinnitus.

Cranial nerve V: absent corneal reflex.

Cranial nerve VII: facial palsy.

Acoustic neuroma is associated with the autosomal dominant condition of neurofibromatosis type 2 in some patients. Investigations are with pure-tone audiometry and MRI head. Management is dependent upon the tumour size: small tumours may not need treatment and regular scans should be sufficient to ensure that no complications occur. Larger tumours can be resected via gamma knife surgery (>3.5cm).

A left conductive hearing loss will present with Rinne's test showing bone conduction > air conduction in the affected ear and Weber's test will lateralise to the left (affected ear). Examples of conductive hearing loss causes include problems with the external auditory meatus, tympanic membrane, or auditory ossicles.

Menière's disease is associated with hearing loss. However, the patient would be expected to report tinnitus and a sensation of fullness in the ear. During an attack, patients will often appear distressed due to nausea and dizziness and will be unable to stand. Examination during an attack will show horizontal nystagmus.

Presbyacusis is another cause of sensorineural hearing loss. This occurs due to age-related cumulative damage from the environment, oxidative stress, or the use of ototoxic drugs (aspirin, quinine, loop diuretics e.g. furosemide, aminoglycoside antibiotics e.g. gentamicin, chemotherapy). Patients do not experience dizziness associated with the hearing loss and the hearing loss is bilateral and at high-frequency sounds. As this patient's presentation is with dizziness and unilateral hearing loss, there are more likely alternative diagnoses that should be excluded.

A right conductive hearing loss will present with Rinne's test showing bone conduction > air conduction in the affected ear and Weber's test will lateralise to the right (affected ear).

Question:

A 66-year-old male patient presents with a 2 month history of back pain. Investigations reveal:

Hb 80 g/l

Platelets 254 \* 109/l

WBC 5.6 \* 109/l

Creatinine 200 µmol/l

An MRI spine shows a pathological fracture of T7. Serum protein electrophoresis is negative. Bence Jones proteins (BJP) are detected in the urine.

What is the most likely diagnosis?

A.Waldenstrom's macroglobulinaemia

B.Monoclonal gammopathy of unknown significance

C.Chronic lymphocytic leukaemia

D.Lymphoma

E.Multiple myeloma

Answer:Multiple myeloma

Explanation:

The pathological fracture, renal dysfunction and anaemia are very suggestive of multiple myeloma, especially in an elderly patient. This question raises an important issue with regards to serum protein electrophoresis. A proportion of myelomas (approximately 10%) do not produce heavy chains, such that intact monoclonal immunoglobulin is not present. However, in the majority of these cases, light chains (kappa or lambda) will be produced resulting in cast nephropathy and a positive BJP in the urine. That is why a BJP should always be part of the myeloma screen. A very small proportion of cases do not even produce measurable amounts of BJP (oligo or non-secretory myelomas). These can be very difficult to diagnose. Serum free light chain assays are helpful as they are far more sensitive compared to the urine free light chain test (BJP).

Question:

A 52-year-old female presents to her general practitioner with a two-week history of lethargy and paraesthesia in her hands. She denies any recent changes in her weight, has not had a change in her bowel habits and denies low mood or muscle cramps.

She takes no regular medications.

A full blood count reveals the following:

Hb 102 g/L Male: (135-180)

Female: (115 - 160)

MCV 114 fL (77-95)

Platelets 392 \* 109/L (150 - 400)

WBC 7.52 \* 109/L (4.0 - 11.0)

Haematinics reveal the following:

Folate 1.2 ug/L (3-20)

Vitamin B12 82 ng/L (197-771)

How might you manage this patient initially?

A.Folate replacement 4mg/day lifelong

B.Folate replacement 5mg/day for 4 months

C.Folate replacement 400mcg/day for 4 months

D.10mg IM vitamin B12 followed by 3 monthly doses of 1mg IM

E.Vitamin B12 1mg IM three times/week then 1mg IM every 3 months

Answer:Vitamin B12 1mg IM three times/week then 1mg IM every 3 months

Explanation:

Vitamin B12 deficiency is typically managed intramuscular B12 replacement, a loading regime followed by 2-3 monthly injections

Important for meLess important

Vitamin B12 deficiency is managed with a loading and maintenance regime. To begin with, 1mg of hydroxocobalamin is administered IM 3 times a week for two weeks. Maintenance involves hydroxocobalamin 1mg IM every 3 months. If the deficiency is not thought to be diet-related, then this maintenance treatment continues lifelong.

Folate replacement is an appropriate therapy for this patient. However, folate should never be replaced before vitamin B12 due to the risk of precipitating subacute combined degeneration of the cord. (Think BeFore: B before F to help you remember).

4mg of folate is not an appropriate dose.

5mg of folate for 4 months is an appropriate dose, however should not come before replacement of vitamin B12.

400mcg is a prophylactic dose, not a treatment dose of folate.

A one-off dose of IM vitamin B12 is not adequate therapy.

Question:

You are reviewing a patient with Parkinson's disease. Which one of the following types of medications has been most linked with impulse control disorders?

A.Levodopa

B.Catechol-O-Methyl Transferase inhibitors

C.Dopamine receptor agonists

D.Amantadine

E.Monoamine Oxidase-B inhibitors

Answer:Dopamine receptor agonists

Explanation:

Question:

A 32 year old lady with no underlying co-morbidities presents as she has found she is pregnant. You counsel her about pregnancy supplements. She asks if she can just continue her usual multivitamin tablet she buys over the counter. Which vitamin, if taken in high doses, can be teratogenic?

A.Vitamin A

B.Vitamin B1

C.Vitamin B12

D.Vitamin C

E.Vitamin D

Answer:Vitamin A

Explanation:

Vitamin A is teratogenic in high doses, and pregnant women should not exceed a daily intake of >10,000IU. Women are therefore advised to avoid any supplements containing vitamin A, such as normal multivitamin tablets, in pregnancy (NHS Choices). However, as supplements in the UK are now limited to a maximum vitamin A content of 6,000IU, if they have been taking one it should not be cause for concern. Pregnant women are also advised to avoid eating liver, as it has high levels of vitamin A.

Sources: NHS Choices

http://www.nhs.uk/conditions/pregnancy-and-baby/pages/vitamins-minerals-supplements-pregnant.aspx#close

NICE CKS

http://cks.nice.org.uk/pre-conception-advice-and-management#!scenario:1

Question:

You are reviewing a 55-year-old man who has recently been diagnosed with Barrett's oesophagus. This was diagnosed after the patient was referred due to difficult to control symptoms. No evidence of dysplasia was found on biopsies. In terms of risk factor modification, which one of the following has been shown to be most strongly linked to the development of Barrett's oesophagus?

A.Use of NSAIDs

B.Eating smoked fish

C.Alcohol

D.Smoking

E.Gastro-oesophageal reflux disease

Answer:Gastro-oesophageal reflux disease

Explanation:

GORD is the single strongest risk factor for the development of Barrett's oesophagus

Important for meLess important

Question:

A 25-year-old brightly dressed woman has been admitted to the psychiatric intensive care unit. She is asked why she was admitted and she responds 'It started at my GP because they're so hard to see, busy busy busy, making money, I've been busy too. I'm investing in bitcoin, get a few extra coins in my pocket, write it in my pocketbook, I love books, I read all the time because I'm trying to cure cancer'. The speech is rapid and has a sense of urgency and when being asked further questions she demonstrates the same behaviour.

What best describes this patient's behaviour?

A.Circumstantiality

B.Flight of ideas

C.Knight's move

D.Perseveration

E.Tangentiality

Answer:Flight of ideas

Explanation:

Differentiating between Knight's move and flight of ideas - Knight's move thinking there are illogical leaps from one idea to another, flight of ideas there are discernible links between ideas

Important for meLess important

Flight of ideas is correct. This patient is likely to be experiencing mania given her fast-flowing pressured speech. Although each sentence conveys a different message, they all have discernible links between them, making the most likely behaviour flight of ideas.

Knight's move is incorrect as this would be the case if each sentence she spoke conveyed different ideas with no discernible links between them, and were completely random and illogical. This speech pattern is associated with schizophrenia. Each sentence in the patient's speech has discernible links, which is not seen in Knight's move.

Circumstantiality is incorrect as it is where patients cannot answer a question without giving excessive and unnecessary detail but eventually return to answer the question. This would be the case if the patient eventually answers the question and explains why she was admitted, however, she does not and does not answer further questions.

Perseveration is incorrect. This is where patients repeat a phrase or word despite moving on from the initial question. For example, if she were asked what day of the week it is and then answered all following questions with 'Wednesday'. In the stem, she repeats this behaviour saying different sentences to all questions with discernible links, making this option incorrect.

Tangentiality is incorrect. This is where patients wander away from a topic without returning to it. For example, if she were asked about her mood and she started talking about the motorway, and then when asked about the motorway, she moves on to another entirely different topic. Although her sentences convey different ideas and deviate from the initial question, they are linked together and have some logic to their flow, making flight of ideas a better description of her behaviour.

Question:

A 72-year-old male is recovering from a partial colectomy that he had 3 days ago. The patient complains of worsening pain at the wound site. On closer examination there is pink serous discharge, separation of the wound edges and bowel can be seen protruding. The patient has no other obvious symptoms. How should this patient immediately be managed?

A.Cover the area with dry gauze and apply pressure

B.Pack the wound and begin intravenous fluids

C.Start sepsis six protocol

D.Non-urgent senior review

E.Call for senior help urgently

Answer:Call for senior help urgently

Explanation:

Wound dehiscence is a post-operative complication in which a wound ruptures along the surgical incision site. In this case, deep dehiscence has occurred as bowel can be seen protruding. This is an emergency and senior help should be called for immediately.

Non-urgent senior review should be considered for superficial dehiscence.

Applying pressure with dry gauze is inappropriate immediate management for this patient. However, a large sterile swab soaked in 0.9% saline can be used while waiting for senior help to arrived.

Packing the wound can be considered for superficial dehiscence but is an inappropriate immediate management for this patient.

Sepsis six protocol is a possibility and the patient's vital signs should be recorded after senior help has been called for.

Question:

A 65-year-old man is recovering on the ward, one day after a right-hemicolectomy for colorectal cancer. He complains of abdominal pain and nausea and has vomited 3 times in the last hour.

His heart rate is 105 bpm, blood pressure 100/83 mmHg, and temperature is 37.3ºC. There is abdominal distention with slight tenderness, his chest is clear, bowel sounds are absent, and there are no signs of wound infection or dehiscence. He has not opened his bowels or passed any wind since the operation.

Investigations are performed:

Na+ 130 mmol/L (135-145 mmol/L)

K+ 3.2 mmol/L (3.5 - 5.0 mmol/L)

CRP 145 mg/L (< 10 mg/L)

What is the most likely diagnosis?

A.Ileus

B.Large bowel obstruction

C.Overuse of opiate pain relief

D.Post-operative nausea and vomiting

E.Small bowel obstruction

Answer:Ileus

Explanation:

Abdominal pain, bloating and vomiting following bowel surgery → ?postoperative ileus

Important for meLess important

Ileus is correct. Also known as paralytic or post-operative ileus, ileus is a common complication following surgery, especially in procedures involving handling the bowel. It is characterised by reduced peristalsis, leading to signs and symptoms similar to bowel obstruction and absent bowel sounds. The deranged electrolytes also make ileus more likely as they can contribute to its development. Management is supportive, as it usually resolves by itself.

Post-operative nausea and vomiting is incorrect. Although this is common following an operation, this would not explain the absent bowel sounds.

Large bowel obstruction is incorrect. Whilst the patient's presentation is similar to a bowel obstruction, ileus is more likely due to the timescale; he very recently had surgery to remove a tumour, making it too soon for the tumour to recur. The most common causes of large bowel obstruction are tumours, volvulus, and diverticular disease.

Overuse of opiate pain relief is incorrect. This is a possible differential but is less likely due to the timescale and deranged electrolytes.

Small bowel obstruction (SBO) is incorrect. Whilst the symptoms are similar to those above, SBO is often caused by adhesions, which take time to form after surgery. The short timescale and the deranged electrolytes make a diagnosis of ileus more likely.

Question:

A 28-year-old woman presents with cyclical pelvic pain that is worse around her periods. The pain starts 2 days before the period and lasts until several days after. She has associated dyspareunia and has had some painful bowel movements. Paracetamol and ibuprofen previously helped, however, they no longer do.

An examination reveals generalised tenderness, a fixed and retroverted uterus and uterosacral ligament nodules. Her BMI is 29 kg/m². She would like to start a family next year but does not mind taking contraceptives if she is able to stop and conceive then.

What is the next best step in her management?

A.Offer combined oral contraceptive pill

B.Offer medroxyprogesterone acetate

C.Offer mefenamic acid

D.Refer for consideration of GnRH analogue

E.Refer for laparoscopic excision

Answer:Offer combined oral contraceptive pill

Explanation:

If analgesia doesn't help endometriosis then the combined oral contraceptive pill or a progestogen should be tried

Important for meLess important

Offer combined oral contraceptive pill is correct. This patient has signs and symptoms consistent with endometriosis, characterised by her chronic cyclical pelvic pain, dyspareunia, secondary dysmenorrhoea, and pain with bowel movements. The examination findings support this diagnosis and are commonly seen in people with endometriosis. The first-line option to try in endometriosis is paracetamol with or without an NSAID (usually mefenamic acid or ibuprofen). If these fail, the second-line option is hormonal therapy (e.g. the combined oral contraceptive pill, medroxyprogesterone acetate etc.). Since this patient would like to start a family within the next year, it would be more appropriate to offer the combined oral contraceptive pill, as it is not associated with a delayed return to fertility. Medroxyprogesterone acetate is also known as Depo Provera and provides contraception for up to 12 weeks, but its effects cannot be reversed once given and it is associated with a potential delayed return to fertility (up to 12 months).

Offer medroxyprogesterone acetate is incorrect. Although the combined oral contraceptive pill or a progestogen should be offered if analgesia does not help endometriosis, this patient would like to start a family within the next year, therefore it would be more appropriate to offer the combined oral contraceptive pill, as it is not associated with a delayed return to fertility. Medroxyprogesterone acetate is also known as Depo Provera and provides contraception for up to 12 weeks, but its effects cannot be reversed once given and it is associated with a potential delayed return to fertility (up to 12 months). As well as this, her BMI is 34 kg/m² and a known side effect of the injectable contraceptive is weight gain.

Offer mefenamic acid is incorrect. Analgesia has already been tried without success in this patient. Mefenamic acid is another type of NSAID and would be unlikely to work if ibuprofen is unsuccessful. If analgesia does not help in endometriosis, the combined oral contraceptive pill or a progestogen should be trialled.

Refer for consideration of GnRH analogue is incorrect. This would be considered if hormonal therapy is ineffective. It would be inappropriate to jump to a referral without trialling the combined oral contraceptive pill first.

Refer for laparoscopic excision is incorrect. This would be considered if hormonal therapy and other measures such as GnRH agonists are ineffective. It would be inappropriate to jump to a referral without trialling the combined oral contraceptive pill first, as surgery carries more risks that may not be necessary (e.g. infection and bleeding).

Question:

A 55-year-old man is admitted to the Emergency department with an acute exacerbation of his COPD. He is cyanosed, tachycardic and his oxygen saturations on room air are 58%. What is the most appropriate initial oxygen therapy?

A.2 Litres via nasal cannulae

B.5-10 Litres via a simple face mask

C.Call an anaesthetist for rapid sequence induction and intubation

D.High-flow oxygen via a non-rebreather mask

E.Venturi mask at 24-28%

Answer:High-flow oxygen via a non-rebreather mask

Explanation:

For critically ill patients, high-flow oxygen therapy should be delivered immediately. Since patients will die of hypoxia before hypercapnia, it is inappropriate to deny these patients high-flow oxygen in the acute setting.

The British thoracic society recommends that patients with COPD or other risk factors for hypercapnia (e.g. morbid obesity, neuromuscular problems) who develop a critical illness should be treated in the same manner as other critically ill patients until urgent blood gas results become available. Critically ill patients with hypercapnia, hypoxaemia and acidosis require immediate assessment by intensive care teams and will usually require intubation and mechanical ventilation.

Reference: BTS 2008 Guidelines for emergency oxygen use in adult patients.

Question:

A 75-year-old lady presents to the emergency room after falling onto her left elbow. She has marked bruising and tenderness of the left upper arm. On examination, you note a left wrist drop.

What is the most likely injury?

A.Fracture of the proximal humerus

B.Supracondylar fracture of humerus

C.Colle's fracture

D.Smith's fracture

E.Fracture of the shaft of the humerus

Answer:Fracture of the shaft of the humerus

Explanation:

This example describes an injury of the humerus with associated radial nerve damage. The radial nerve is most susceptible to damage from a fracture of the shaft of the humerus.

Supracondylar fracture of humerus is most commonly associated with ulnar nerve damage. Fracture of the proximal humerus is most commonly associated with axillary nerve damage.

Colle's fracture and Smith's fracture are fractures of the distal radius. These fractures are not in keeping with the upper limb examination findings.

Question:

Peggy is a 68-year-old woman who comes to see you with skin changes on her left lower leg. On examination, Peggy has a low grade fever and the left lower leg is erythematous, mildly swollen and hot to touch. You diagnose cellulitis and as Peggy is penicillin allergic, you prescribe a course of oral clarithromycin.

Peggy comes to see you 1 week later with new palpitations.

Which of the following side effects of this antibiotic can be seen on an ECG?

A.Prolonged PR interval

B.Prolonged QT interval

C.Prominent P waves

D.Shortened PR interval

E.T wave flattening

Answer:Prolonged QT interval

Explanation:

Macrolides may cause prolongation of the QT interval

Important for meLess important

From the options listed, QT interval prolongation can be caused by macrolides. Palpitations are also listed as an uncommon side effect of macrolides.

A prolonged PR interval indicates delayed conduction of the sinoatrial nodal impulse to the ventricles and is called first-degree AV block.

Prominent P waves are caused by right atrial enlargement. The principal cause is pulmonary hypertension due to: chronic lung disease (cor pulmonale); tricuspid stenosis; congenital heart disease (pulmonary stenosis, Tetralogy of Fallot); or primary pulmonary hypertension.

A shortened PR interval suggests pre-excitation (the presence of an accessory pathway between the atria and ventricles) which includes syndromes such as such as Wolff–Parkinson–White syndrome, or it could also suggest an AV nodal (junctional) rhythm.

T wave flattening has multiple causes including ischaemia, hypokalaemia and hypocalcaemia.

Question:

You review a 40-year-old mechanic who presents with joint pains. For the past two months he has noticed intermittent pain, stiffness and swelling of the joints in his hands and feet. The stiffness tends to improve during the day but the pain tends to get worse. He has also noticed stiffness in his back but cannot remember any aggravating injury. You order some blood tests (taken during an acute attack) which are reported as follows:

Rheumatoid factor Negative

Anti-cyclic citrullinated peptide antibody Positive

Uric acid 0.3 mmol/l (0.18 - 0.48)

ESR 41 mm/hr

What is the most likely diagnosis?

A.Reactive arthritis

B.Ankylosing spondylitis

C.Gout

D.Osteoarthritis

E.Rheumatoid arthritis

Answer:Rheumatoid arthritis

Explanation:

Anti-cyclic citrullinated peptide antibodies are associated with rheumatoid arthritis

Important for meLess important

Anti-cyclic citrullinated peptide antibody is highly specific for rheumatoid arthritis.

Question:

A 7-year-old girl is admitted under the paediatric team with a 2-day history of rash, abdominal pain, and blood in her urine. Her notes show a recent course of oral antibiotics for a urinary tract infection from her GP. She has no past medical history and is up to date with immunisations.

On examination, there is a purpuric rash over her buttocks and both lower limbs.

After 4 days on the ward, she is discharged.

Considering her likely diagnosis, what should her parents be counselled to monitor?

A.Blood glucose and oxygen saturations

B.Blood glucose and urine dipstick

C.Blood pressure and blood glucose

D.Blood pressure and urine dipstick

E.Heart rate and oxygen saturations

Answer:Blood pressure and urine dipstick

Explanation:

Patients with active Henoch-Schonlein purpura: blood pressure and urinanalysis should be monitored to detect progressive renal involvement

Important for meLess important

This patient has symptoms consistent with Henoch-Schonlein purpura (HSP)- rash, abdominal pain, and haematuria. The rash is usually the first clinical sign and typically occurs on the buttocks and extensor surfaces, it can also involve the face and upper limbs but typically spares the trunk. Gastrointestinal upset may occur in up to 50% of children prior to the onset of the rash. Upon discharge, patients are asked to monitor their blood pressure and urine dipstick at home and they are followed up in clinic 7 days post-discharge. If there is any record of proteinuria, they will have closer follow-up (usually every month for the next 3 months) than those who do not experience proteinuria. This is due to the increased risk of renal failure in this group. Blood pressure is also monitored to assess for renal involvement as patients with hypertension have been shown to also be at risk of renal failure.

Blood glucose and oxygen saturations is the incorrect answer. There is not typically an adverse effect on blood glucose long-term from HSP and nor is there an effect on oxygen saturations.

Blood glucose and urine dipstick is an incorrect answer as blood glucose is not affected by HSP. However, urine dipstick checks should be performed to assess any long-term renal damage.

Blood pressure and blood glucose is an incorrect answer. Blood pressure should be monitored to assess for renal involvement with hypertension being a poor sign. Blood glucose is not routinely monitored as impaired glucose tolerance is not associated with HSP.

Heart rate and oxygen saturations is an incorrect answer. HSP is not associated with cardiorespiratory complications directly and, as such, these are not parameters that are most important for monitoring.

Question:

A 42-year-old woman suffered from a crushing central chest pain. This was not relieved by leaning forward or resting. The pain began an hour after she was told that her son had died in a road traffic accident. She presented to the emergency department where her ECG showed ST-segment elevation. The QRS complex is of normal duration. Auscultation of the heart did not reveal any murmur. She was rushed for invasive catheterisation but her coronary arteries were not obstructed. Later, echocardiogram confirmed the diagnosis of Takotsubo cardiomyopathy.

Which of the following echocardiographic finding may be found in this patient?

A.Unsynchronised contractions of the left and right ventricles

B.Fluid surrounding the heart

C.Apical ballooning of the myocardium (resembling an octopus pot)

D.A defect in the septum of the heart

E.Valve regurgitation

Answer:Apical ballooning of the myocardium (resembling an octopus pot)

Explanation:

Takotsubo cardiomyopathy is associated with apical ballooning of myocardium (resembling an octopus pot)

Important for meLess important

Takotsubo cardiomyopathy also known as 'Broken heart syndrome' and 'Takotsubo apical ballooning syndrome' describes a cardiomyopathy induced by severe stressful triggers; in this case, the shocking news of her son's death. Takotsubo is a Japanese word that describes an octopus trap; this is used to describe the appearance of the heart on LV echocardiogram, CMR or echocardiogram. This apical ballooning appearance occurs due to severe hypokinesis of the mid and apical segments with preservation of activity of the basal segments. In simple terms, the bottom of the heart (the apex) does not contract and therefore appears to balloon out. However, the area closer to the top (the base) continues to contract (creating the neck of the octopus trap).

Option 1: Unsynchronised contractions of the left and right ventricles occur in LBBB (correctable by cardiac resynchronisation therapy CRT). Since the QRS complex is of normal duration, this is not the correct answer.

Option 3: Fluid surrounding the heart describes pericardial effusion. When symptomatic, pericardial effusion presents with pleuritic chest pain, dyspnoea on exertion and in severe cases, cardiac tamponade. The patient did not exhibit these symptoms.

Option 4&5: A defect in the septum of the heart might be either a PFO or VSD. Both options are incorrect as examination did not reveal any murmur.

Question:

A 72-year-old woman presents to her general practitioner with a 3 day history of a painful rash on her back. She describes the pain as a 'burning' sensation. She has a rash which is linear in shape, extending laterally from the T6 vertebra to the axilla. The rash is maculopapular with an erythematous base, and the general practitioner notes the formation of vesicles.

The general practitioner makes a clinical diagnosis and manages the patient appropriately.

What advice should be given to the patient regarding the infectious nature of the condition?

A.The condition is not infectious

B.The condition was infectious in the asymptomatic phase, but now she has symptoms she is no longer infectious

C.The condition is infectious until vesicles have crusted over, usually 5-7 days following the onset

D.The condition is infectious until the rash disappears, usually 10-14 days following the onset

E.The condition is infectious until vesicles have crusted over, usually 10-14 days following the onset

Answer:The condition is infectious until vesicles have crusted over, usually 5-7 days following the onset

Explanation:

People with shingles should be advised that they are infectious until the vesicles have crusted over, usually 5-7 days following onset

Important for meLess important

The description of a painful vesicular rash in a dermatomal pattern in an older person is typical of shingles.

Shingles (like chickenpox) is infectious until the vesicles crust over, usually 5-7 days after onset. Therefore advising that the condition is not infectious is incorrect.

Although the timeframe may vary, it is rare for shingles vesicles to take >10 days to crust over and so this advice is incorrect.

It is not necessary for the rash to disappear entirely before the patient becomes non-infectious. The vesicles only need to burst and crust over. Therefore, the option requiring the rash to disappear is unnecessary.

As the varicella zoster virus (VZV) is transmitted through the lesions, the patient is non-infectious in the asymptomatic period.

Shingles is a common, uncomfortable and extremely painful condition, with post-herpetic neuralgia affecting a significant number of patients. Shingles is also fatal for 1 in 1000 people over the age of 70 who develop it. For these reasons, the shingles vaccine is available in the UK to all people aged 70 and over.

Question:

A 33-year-old patient comes to see you as she has noticed an itchy rash on both elbows. It has been worsening for the past week. On examination, you see a multiple polygonal, flat-topped papular lesions that each measure 5mm diameter on the flexural surface of her elbows, bilaterally. She has no other rash on the rest of her body.

Which one of the following is the most likely diagnosis?

A.Pityriasis alba

B.Eczema

C.Psoriasis

D.Scabies

E.Lichen planus

Answer:Lichen planus

Explanation:

Lichen planus is an itchy, papular rash which most commonly occurs on the palms, soles, genitalia and flexor surfaces of the arms.

Pityriasis alba is a skin condition which results in dry, fine-scaled, pale patches on the face. It is self-limiting and can be treated with emollients.

Eczema causes itchy, dry and red skin, it most commonly affects the hands, flexural surface of the elbows and the face and scalp in children.

Psoriasis is an autoimmune disease which is characterised by patches of red itchy and scaly skin abnormal skin.

Scabies is a contagious and itchy skin infestation which is caused by the mite Sarcoptes scabiei.

Question:

A 33-year-old male presents to ENT having been referred by his GP. He perforated his tympanic membrane 6 months ago and it has failed to heal spontaneously over this time.

What is the most appropriate next step in management?

A.Advise to keep the ear dry and healing should occur within 6-8 weeks

B.Steroid ear drops

C.Myringoplasty

D.Vent insertion

E.Stapedectomy

Answer:Myringoplasty

Explanation:

If a perforated tympanic membrane does not heal by itself a myringoplasty may be performed

Important for meLess important

The correct answer is myringoplasty which is an operation performed to repair the perforation. This is appropriate as spontaneous healing has failed to occur. Following a perforation healing should occur within 6-8 weeks however in this situation it has failed to occur after 6 months, making waiting another 6-8 weeks inappropriate. Steroid ear drops and vents are not used to treat a perforated tympanic membrane. A stapedectomy is an operation used to improve conductive hearing loss, not to treat a perforated tympanic membrane.

Question:

A 60-year-old man presents with a prolonged history of altered sensation. He informs you that many weeks ago he burnt both of his shoulders after leaning against a radiator. His wife was bemused that he did not realise how hot the radiator was at the time.

The burn has since been assessed and has healed fully, however the patient has been increasingly confused as to why he cannot feel pain or heat over either of his shoulders. He is usually fit and well, and takes no regular medication.

What is the most likely cause of his symptoms?

A.Anterior cord syndrome

B.Brown-Sequard syndrome

C.Diabetic neuropathy

D.Syringomyelia

E.Third degree burn

Answer:Syringomyelia

Explanation:

Syringomyelia classically presents with cape-like loss of pain and temperature sensation due to compression of the spinothalamic tract fibres decussating in the anterior white commissure of the spine

Important for meLess important

Syringomyelia results from the development of a fluid-filled cyst, also known as a syrinx, in the centre of the spinal cord. As the spinothalamic tracts cross in the centre of the spinal cord, syringomyelia classically presents with a cape-like loss of pain and temperature sensation affecting both sides of the body. Syringomyelia may be classified as either congenital or acquired. Congenital causes are more common and typically present between the ages of 25 and 40. Acquired syringomyelia, in contrast, can be caused by physical trauma, for example haemorrhage or a tumour.

Anterior cord syndrome can also present with loss of pain and temperature sensation. However, it is typically caused by ischaemia in the spinal cord, for example through aortic dissection. For this reason, it tends to present more acutely than syringomyelia and is therefore not the most likely cause of this patient's symptoms.

Brown-Sequard syndrome is caused by damage to one-half of the spinal cord. It results in paralysis and loss of proprioception on the same side as the lesion, and loss of pain and temperature sensation on the opposite side as the lesion.

Diabetic neuropathy can present in many different ways, however, the most common form is a distal symmetrical polyneuropathy which results in the classic 'glove and stocking' loss of sensation.

A third-degree burn refers to a full-thickness burn that extends through the entire dermis. Generally, they are white or brown and the patient will have no sensation over this area. This therefore could explain the patient's symptoms, however, the question explains that the area has been assessed and has now fully healed. In contrast, third-degree burns can take months to heal and often require surgical intervention.

Question:

A 54-year-old man is admitted to the hospital with pain and swelling over the right leg. It began 2 days ago as a small red area but rapidly progressed in size. He has vomited several times. His past medical history includes type 2 diabetes mellitus and hypertension. He takes metformin, dapagliflozin, amlodipine and ramipril.

On examination, he appears unwell. The medial aspect of the right leg appears erythematous with some skin breakdown and is too tender to be touched. He is unable to move the knee or ankle due to pain. Observations are recorded as follows: heart rate 112 beats/min, blood pressure 94/72 mmHg, temperature 38.2ºC.

Given the likely diagnosis, which of the following is the definitive management?

A.Intravenous immunoglobulin

B.Oral linezolid

C.Oral rivaroxaban

D.Surgical debridement

E.Thrombolysis

Answer:Surgical debridement

Explanation:

Management of necrotising fasciitis revolves around immediate surgical debridement nd IV antibiotics

Important for meLess important

The diagnosis here is that of necrotising fasciitis, a medical emergency that can be difficult to identify initially. As in this scenario, it is characterised by acute onset and pain, swelling and erythema at the site of infection that rapidly worsens. The pain is often out of keeping with the physical appearance (initially), as is the case here. As it progresses, the skin will show signs of necrosis and crepitus/gas gangrene may develop - these are late signs. The correct answer for definitive management is surgical debridement, immediately (along with intravenous antibiotics).

Intravenous immunoglobulin may be considered as an adjunct if the causative bacteria are streptococcal in nature and have caused streptococcal toxic shock syndrome. As well as the presentation of being generally unwell, this may also present with confusion and multiple organ failure.

Oral antibiotics are insufficient for necrotising fasciitis and so linezolid is incorrect. This patient is clearly unwell and rapidly becoming more and more septic - intravenous antibiotics, rather than oral, should be given alongside surgical debridement.

Rivaroxaban is a direct oral anticoagulant. This would be started if the diagnosis here were that of deep vein thrombosis (DVT). The scenario would present differently, with a focus on pain and possibly signs of breathlessness, indicating pulmonary embolism, rather than features suggesting infection such as pyrexia and skin infection.

Thrombolysis would also be used for DVT, if the patient were displaying signs of right heart strain. It plays no role in the management of necrotising fasciitis.

Question:

A 6-year-old boy is brought to surgery. His mother says he has been complaining of left sided otalgia for the past three days. Otoscopy demonstrates the following:

What is the most likely diagnosis?

A.Acute otitis media with perforation

B.Cholesteatoma

C.Glue ear

D.Normal tympanic membrane

E.Acute otitis media

Answer:Acute otitis media

Explanation:

The bulging nature of the tympanic membrane strongly suggests a diagnosis of otitis media. The colour of the tympanic membrane alone has a low predictive value for otitis media as it may be reddened by coughing, nose blowing, and fever.

Question:

A 65-year-old woman is seen in the rheumatology clinic. She has complained about 'arthritis' in her hands and feet for many years:

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What is the most likely diagnosis?

A.Paget's disease

B.Primary hyperparathyroidism

C.Rheumatoid arthritis

D.Osteoarthritis

E.Gout

Answer:Rheumatoid arthritis

Explanation:

The distribution of joint problems (mainly metacarpophalangeal and proximal interphalangeal joints) and changes seen (erosions, subluxation and loss of joint space) points to a diagnosis of rheumatoid arthritis.

Question:

A 2-year-old child is referred by the GP for treatment-resistant chronic constipation. Which of the following features in the history would help point to a diagnosis of Hirschsprung's disease?

A.Family history of multiple endocrine neoplasia type 1 (MEN1)

B.Passage of meconium at day 3

C.Family history of cystic fibrosis

D.Non-bilious vomiting

E.The child has a temperature of 39ºC

Answer:Passage of meconium at day 3

Explanation:

Passage of meconium after 48 hours is a red flag

Important for meLess important

Meconium normally passes within the first 24 hours. Delayed passage (specifically >48 hours) is a red flag associated with Hirschsprung's disease (Around 50% of babies with delayed passage have the disease).

As the disease can present in later childhood, you should always inquire about the timing in children presenting with symptoms of chronic constipation or obstruction.

Hirschsprung's disease is associated with MEN 2A/B and not MEN1

Cystic fibrosis is associated with meconium ileus, one of the main differentials for Hirschsprung's disease

Non-bilious vomiting would be associated with pyloric stenosis

A temperature would not be a factor suggesting Hirschsprung's disease

Question:

A 65-year-old female presents to the GP as she has been feeling generally unwell and tired for 2 weeks. She wonders whether this may be related to some undercooked pork she ate about a month ago. Her past medical history includes chronic kidney disease, for which she has had a kidney transplant 2 years ago. She has had no unprotected sex, has no tattoos and is not an IV drug user. On examination, she has a low-grade fever and cervical lymphadenopathy.

Hb 120 g/L Male: (135-180)

Female: (115 - 160)

Platelets 450 \* 109/L (150 - 400)

WBC 10.5 \* 109/L (4.0 - 11.0)

CRP 30 mg/L (< 5)

EBV serology NEGATIVE

What is the most likely diagnosis?

A.Epstein-Barr virus

B.Human immunodeficiency virus

C.Leukaemia

D.Scarlet fever

E.Toxoplasmosis

Answer:Toxoplasmosis

Explanation:

Acute toxoplasmosis in the immunocompetent patient can mimic acute EBV infection (low-grade fever, generalised lymphadenopathy with prominent cervical lymph nodes and malaise) and should be suspected with negative EBV serology. Pregnancy testing and counselling is paramount due to the risk of congenital toxoplasmosis

Important for meLess important

The correct answer is toxoplasmosis. This may be asymptomatic, or present with non-specific signs of infection, focal neurological deficits or eye symptoms (chorioretinitis). She is at higher risk as she is immunosuppressed (i.e. she's on immunosuppressants due to her kidney transplant) and believes she has eaten undercooked pork which may transmit the parasite.

Her negative EBV serology rules out EBV which presents similarly with non-specific infection signs.

Leukaemia is a possible option but it's less likely given that she is not anaemic.

Scarlet fever is incorrect as it usually affects young children and presents with a rash (in addition to fever, sore throat and lymphadenopathy).

Human immunodeficiency virus is a possibility but is unlikely given the lack of risk factors.

Question:

A 53-year-old female presents to your clinic for a follow-up of her irritable bowel syndrome (IBS). She describes how she has been feeling generally well and has not experienced any episodes of diarrhoea for the past 4 months. Her past medical history includes hypertension and depression, and her regular medications include amiloride, omeprazole and sertraline. A set of laboratory investigations are ordered as part of this follow-up, results of which are below.

Na+ 138 mmol/L (135 - 145)

K+ 4.3 mmol/L (3.5 - 5.0)

Bicarbonate 24 mmol/L (22 - 29)

Urea 5.6 mmol/L (2.0 - 7.0)

Magnesium 0.48 mmol/L (0.7 - 1.0)

Creatinine 101 µmol/L (55 - 120)

Phosphate 0.82 mmol/L (0.8 - 1.4)

Which of the following is the most likely cause of these laboratory findings?

A.Amiloride

B.Hypercalcemia

C.Irritable bowel syndrome (IBS)

D.Omeprazole

E.Sertraline

Answer:Omeprazole

Explanation:

Proton pump inhibitors are a common cause of hypomagnesaemia

Important for meLess important

When examining the patient's laboratory values, the only derangement appears to be the low magnesium. One of the most notable causes of hypomagnesemia are proton-pump inhibitors, such as omeprazole.

Whilst most diuretics also cause low serum magnesium, amiloride is an exception. Amiloride is a potassium-sparing diuretic that works by blocking the epithelial sodium channel (ENaC) in the collecting tubule of the kidney. It has the added benefit in that it actually reduces net magnesium excretion from the body by promoting reuptake in the cortical collecting tubule.

Sertraline is not a known cause of hypomagnesemia. The only reported electrolyte disturbances of sertraline to be aware of are hyponatremia, which is not seen in this patient.

Given that this patient is asymptomatic and has not had any episodes of diarrhoea for the last 4 months, irritable bowel syndrome (IBS) is not the cause here. Furthermore, you would expect a patient with inflammatory bowel disease (IBD) to have hypomagnesemia not a patient with IBS.

Hypocalcemia, not hypercalcemia, is often seen with hypomagnesemia. This is due to the relationship between the two electrolytes, whereby magnesium is normally responsible for suppressing parathyroid hormone and stimulating calcitonin to encourage calcium absorption.

Question:

Catherine is a G2P1, 25-year-old who was identified as having gestational thrombocytopenia during routine antenatal investigations. She went into spontaneous labour yesterday at 34 weeks. Due to a suspected placental abruption, the consultant obstetrician performed a cat-1 caesarean section. Catherine suffered an intrapartum haemorrhage, with an estimated blood loss of 2,400 ml. The surgery was a success. The next morning on the postnatal ward Catherine is well and is not actively bleeding, you check her FBC.

Hb 100 g/L Male: (135-180)

Female: (115 - 160)

Platelets 25 \* 109/L (150 - 400)

WBC 8 \* 109/L (4.0 - 11.0)

What is the appropriate course of action?

A.Transfuse 1 unit of platelets and repeat until her platelet count returns to normal range

B.Monitor her FBC, but no intervention is currently required

C.Transfuse 1 unit of cross matched blood to boost her platelets and haemoglobin

D.Give fibrinogen and tranexamic acid to prevent any further blood loss

E.Transfuse 1 unit of defrosted fresh frozen plasma and 1 unit of platelets

Answer:Monitor her FBC, but no intervention is currently required

Explanation:

Platelet transfusion is appropriate for patients with a platelet count < 30 x 109 and clinically significant bleeding

Important for meLess important

Platelet transfusion is indicated for patients with a platelet count < 30 x 109 and clinically significant bleeding. Catherine is not actively bleeding and hence doesn't warrant a transfusion, as there is no immediate requirement for more platelets.

Monitoring her FBC for changes in platelets is the appropriate response. If the platelet count rises, the unnecessary intervention has been avoided along with risks such as anaphylaxis associated with blood products. If her platelet levels continue to fall you will be able to take appropriate action. Prophylactic transfusions are usually recommended for platelet counts < 10 x109.

A transfusion is not indicated in this case. If the patient had a platelet count < 30 x 109 and clinically significant bleeding a platelet transfusion would be more appropriate, as the platelets would be required to help stop the bleeding. As the patient is not actively bleeding there is no immediate need to raise the platelet levels.

There is no indication from the question that blood loss is ongoing, or that fibrinogen levels are deranged. Tranexamic acid is an anti-fibrinolytic agent and is used to limit active haemorrhage.

A transfusion of fresh frozen plasma is not indicated in this case. There is no indication from the question that Catherine needs IV fluids, as she is feeling well and will be consuming oral fluids. If the patient had a platelet count < 30 x 109 and clinically significant bleeding a platelet transfusion would be more appropriate, to help stem the bleeding.

Question:

A 17-year-old girl was brought into the emergency department by her mother who 2 hours prior noticed that her child suddenly became limp and fell over. She maintained consciousness and was aware throughout but noticed her eyelid droop and head nod. This lasted a few seconds. The mother believes it was caused by the flashing lights of her eldest son's PS4 console. She decided to bring her daughter into the emergency department as this is the third seizure her daughter has experienced.

What would be the most appropriate first-line medication to provide the patient, considering her most likely diagnosis?

A.Carbamazepine

B.Ethosuximide

C.Lamotrigine

D.Levetiracetam

E.Sodium valproate

Answer:Lamotrigine

Explanation:

Tonic or atonic seizures: lamotrigine is first-line for females

Important for meLess important

Lamotrigine is the correct answer in this case. It is appropriate to prescribe medication as this is her third seizure. Lamotrigine is considered the first-line management option for female patients experiencing tonic or atonic seizures. The patient is showing the typical signs of an atonic seizure including loss of tone but the maintenance of consciousness, with a head nod and eyelid droop. Sodium valproate would be considered the first line for tonic or atonic seizures in male patients experiencing these symptoms. The patient is female in this case, so the most appropriate option is lamotrigine from the options available. Additionally, if the patient was experiencing an absence seizure with episodes of lack of awareness and staring into space, then levetiracetam or lamotrigine can be considered. However, the patient, in this case, is not showing signs of experiencing an absence seizure so levetiracetam would be inappropriate to prescribe.

Carbamazepine is the incorrect answer in this case as would be inappropriate to use in tonic or atonic seizures. This medication can be used as second-line treatment for patients experiencing focal seizures, which is not what the patient is experiencing in this case. Thus, the most appropriate answer is lamotrigine from the options provided.

Ethosuximide is the incorrect answer here also as this would be considered the first-line management for patients experiencing absence seizures with a temporary loss of awareness. The patient maintained her consciousness here and was aware throughout, so ethosuximide is the incorrect answer. The patient also experienced various other symptoms which would not present in absence seizures making this option less suitable.

Levetiracetam is the incorrect answer here also as this medication is more likely to be used for patients experiencing myoclonic seizures with brief jerking spasms. The patient in this case is not showing signs of this and so the most appropriate option is lamotrigine. Additionally, if the patient was experiencing an absence seizure with episodes of lack of awareness and staring into space, then levetiracetam or lamotrigine can be considered. However, the patient, in this case, is not showing signs of experiencing an absence seizure so levetiracetam would be inappropriate to prescribe.

Sodium valproate is the incorrect answer here. This would be considered the first-line management option for males experiencing tonic or atonic seizures. Sodium valproate should be avoided in females and women of childbearing age. The patient, in this case, is female so sodium valproate would be less suitable, and lamotrigine would be more appropriate as it is more tolerable in women. Sodium valproate can be given to females under the age of 10 but the patient, in this case, is 17, so would be inappropriate to give it.

Question:

You see a 62-year-old lady who fractured her right wrist 6 weeks ago when she tripped over her cat. The orthopaedic team suggested a dual-energy X-ray absorptiometry (DEXA) scan and the results have just come back to you.

Her T score is -2.8 and her Z score is -2. You explain to the patient that her results suggest osteoporosis.

What is the Z score adjusted for?

A.Age only

B.Age and gender only

C.Age, gender and ethnic factors

D.Age and weight only

E.Weight and gender only

Answer:Age, gender and ethnic factors

Explanation:

DEXA scans: the Z score is adjusted for age, gender and ethnic factors

Important for meLess important

Bone mineral density (DEXA) scans are used to measure bone mineral density. They are used in patients at risk of osteoporosis or those who have had fragility fractures. You can use the FRAX or QFracture tools online to assess someone's risk of osteoporosis.

The results of a DEXA scan include a T score and a Z score. The T score is your bone density compared to a healthy 30-year-old. The Z score compares your bone density to someone your age and body size. The Z score is adjusted for age, gender and ethnic factors. Therefore, option 3 is correct.

Question:

A 17-year-old woman presents with knee pain. She is an active athlete competing in hurdles and has been having ongoing worsening pain in her knee after exercise. She finds it locks and feels a painful clunk when extending her knee. There is no history of any recent injuries. On examination, there is a small amount of swelling, tenderness on the medial side of the knee and pain on extension and flexion of the knee.

What is the most likely diagnosis in this situation?

A.Medial collateral ligament sprain

B.Osteochondritis dissecans

C.Patellar subluxation

D.Patellar tendonitis

E.Tibial apophysitis

Answer:Osteochondritis dissecans

Explanation:

Osteochondritis dissecans typically presents with knee pain after exercise, locking and 'clunking'

Important for meLess important

This young athlete most likely has osteochondritis dissecans. It commonly causes issues in children and young adults. The condition affects the subchondral bone causing knee pain after exercise, locking and 'clunking'. Investigations include X-ray and MRI and referral to orthopaedics is required for further management.

A medial collateral ligament sprain is possible given the medial knee pain but there is no story of an acute injury that may have caused such sprain.

Patellar subluxation occurs in teenage girls such as the one in this scenario. The common clinical presentation would be with giving-way episodes of the knee. In this situation, this is not the issue; instead, there is pain, post-exercise swelling and clunking which is more consistent with osteochondritis dissecans.

Patellar tendonitis occurs due to inflammation of the patellar tendon and is more common in teenage boys. It presents as vague anterior knee pain that worsens with activities such as walking. The pain, swelling and knee clunking in this scenario are much more consistent with a more serious diagnosis.

Tibial apophysitis is also known as Osgood Schlatter's disease and this would present with a swollen, tender and warm tibial apophysitis. In this situation, the knee is swollen with medial knee pain which is not consistent with this diagnosis.

Question:

A 23-year-old female presents to the emergency department with a 2-day history of fevers, myalgia, and painful eyes. She has recently returned from a trip to the Democratic Republic of the Congo. She was not compliant with her anti-malarial medication during her trip due to gastrointestinal side effects. On examination, she has a temperature of 38.8ºC, she has clustered white lesions on her buccal mucosa and conjunctivitis.

What is the most likely diagnosis?

A.Dengue fever

B.Diphtheria

C.Infectious mononucleosis

D.Malaria

E.Measles

Answer:Measles

Explanation:

Measles is characterised by prodromal symptoms, Koplik spots. maculopapular rash starting behind the ears and conjunctivitis

Important for meLess important

Measles is the correct answer. This patient has the characteristic early signs of measles such as high fevers, conjunctivitis, and Koplik's spots. Koplik's spots are the clusters of white lesions on her buccal mucosa. They are pathognomonic for measles. There is a measles outbreak in The Democratic Republic of the Congo that the World Health Organisation (WHO) has reported as the world's largest and fastest-moving epidemic.

Dengue fever is an incorrect answer. Oral manifestations are rare in dengue fever. Gingival bleeding is the most common oral manifestation. The presence of Koplik's spots indicates a diagnosis of measles.

Diphtheria is an incorrect answer. High fevers, pharyngitis, dyspnoea, cough, and a grey pseudomembrane covering the tonsils are typical signs and symptoms of diphtheria. A grey dense pseudomembrane covering the tonsils is classically seen in diphtheria and differs from Koplik's spots which are clusters of white lesions on the buccal mucosa.

Infectious mononucleosis is an incorrect answer. Infectious mononucleosis typically presents with fevers, pharyngitis, and tender lymphadenopathy. It would not account for the presence of Koplik's spots.

Malaria is an incorrect answer. This patient was at risk of malaria as she was not compliant with her anti-malarial medication. High fevers are suggestive of malaria in the returning traveller, however, malaria would not account for the presence of Koplik's spots.

Question:

A 35-year-old woman is 28 weeks pregnant. Her pregnancy has so far been progressing well, with no known complications. She had glucose in her urine at her 28-week midwife appointment and so her fasting plasma glucose was measured. The result was 7.2mmol/L.

What is the next step in her management?

A.Commence insulin

B.Commence metformin only

C.Offer a trial of diet and exercise changes

D.Offer a trial of diet and exercise changes, and commence metformin

E.Refer for an oral glucose tolerance test to confirm the diagnosis

Answer:Commence insulin

Explanation:

Gestational diabetes - insulin should be commenced if fasting glucose level is >= 7 mmol/l insulin at the time of diagnosis

Important for meLess important

Commence insulin is the correct answer. Insulin should be started to manage gestational diabetes if fasting plasma glucose is above 7mmol/L at the time of diagnosis.

Commence metformin only is an incorrect answer, due to the fasting plasma glucose being greater than 7mmol/L at the time of diagnosis. Metformin is used in the management of gestational diabetes in women who have a fasting plasma glucose between 5.6-6.9mmol/L, where diet and exercise do not control their plasma glucose levels after a 1-2 week trial.

Offer a trial of diet and exercise changes is an incorrect answer. This would not be appropriate due to the fasting plasma glucose being greater than 7mmol/L at the time of diagnosis, but it would be sensible to discuss these with the patient to help the management of the condition.

Offer a trial of diet and exercise changes, and commence metformin is an incorrect answer. This is inappropriate due to the plasma glucose being greater than 7mmol/L.

Referral for an oral glucose tolerance test to confirm the diagnosis, is an incorrect answer. It is not required in this case (but it is the standard way a patient is diagnosed). A patient can be diagnosed with gestational diabetes if their fasting plasma glucose is 5.6 mmol/L or above or they have a 2‑hour plasma glucose level of 7.8 mmol/L or above.

Question:

A 46-year-old man present to the GP with a productive cough. On further questioning the GP discovers that he has also been experiencing weight loss, shortness of breath and fatigue. This has all been ongoing for the last 6 months when he got his new pet parrot. He has been a smoker for the last 15 year, smoking 10 cigarettes a day, and drinks around 10 units of alcohol a week.

He is sent for spirometry:

FVC Reduced

FEV1 Normal

FEV1/FVC ratio >80%

Given this man's presentation what is the best first line treatment?

A.Corticosteroids

B.Long-term oxygen therapy

C.Give up his pet parrot

D.Salbutamol

E.Salmeterol

Answer:Give up his pet parrot

Explanation:

The treatment of extrinsic allergic alveolitis is mainly avoidance of triggers

Important for meLess important

This question is asking about a man presenting with breathlessness, a productive cough, weight loss and fatigue. While there are many causes of this presentation, the fact that these symptoms started when he got his new pet parrot and the restrictive pattern on spirometry point towards a diagnosis of extrinsic allergic alveolitis. The best first-line treatment of extrinsic allergic alveolitis is trigger avoidance, in this case this would involve giving up his pet parrot.

Corticosteroids can be used in cases or severe extrinsic allergic alveolitis, however, trigger avoidance would be tried first.

Long-term oxygen therapy is not used in the management of extrinsic allergic alveolitis, however, in some cases, short-term oxygen therapy will be used during acute attacks.

As this man is suffering from extrinsic allergic alveolitis and not asthma or COPD, there is no place for the use of salbutamol or salmeterol in his presentation.

Question:

A 32-year-old woman presented with jaundiced sclera over a 3 day period. During this time she had been fasting for religious reasons. The patient is otherwise asymptomatic, with no past jaundice or medical history. Her jaundice resolved after ending the fast. Abdominal examination was unremarkable.

Blood samples demonstrate a normal full blood count (FBC) including reticulocyte count, normal blood film, predominantly unconjugated bilirubin of 46 µmol/L (normal range 3 - 17), and otherwise normal liver function tests (LFTs).

What is the most appropriate management for this patient?

A.Reassure

B.Refer to the medical team for admission

C.Urgent upper abdominal ultrasound

D.2 week wait upper gastroenterology referral

E.Repeat liver function tests in 48 hours time

Answer:Reassure

Explanation:

An isolated rise in bilirubin in response to physiological stress is typical of Gilbert's syndrome

Important for meLess important

Suspect Gilbert's syndrome if a person has an incidental finding of an increased serum bilirubin concentration with otherwise normal liver function tests (LFTs). A single episode (or intermittent episodes) of mild jaundice is associated with fasting in this condition. Reassurance is therefore the most appropriate option.

There would be no need to admit this patient who is well and asymptomatic. Gilbert's syndrome requires no treatment or regular monitoring and cannot progress or cause chronic liver disease.

Ultrasound scanning would not aid this diagnosis and in the absence of other symptoms would not be required.

As Gilbert's is not linked to any upper GI malignancies a 2-week wait clinic would not be appropriate. Any episode of jaundice should be self-limiting and resolve within a few days, is not a sign of serious illness, and is not infectious.

Repeating the liver function tests in 48 hours is of no clinical value as this would not change your plan to reassure a patient with this condition.

Question:

A 55-year-old man presents to his general practitioner for an annual blood pressure review. He has a past medical history of essential hypertension and takes amlodipine. He does not smoke cigarettes or drink alcohol. He is originally from Somalia and is of Black African ethnicity.

The examination is unremarkable.

A recent ambulatory blood pressure monitoring reading demonstrates an average blood pressure of 165/93 mmHg.

What is the most suitable choice of medication to add to control his blood pressure from the list below?

A.Atenolol

B.Doxazosin

C.Losartan

D.Ramipril

E.Spironolactone

Answer:Losartan

Explanation:

For patients of black African or African–Caribbean origin taking a calcium channel blocker for hypertension, if they require a second agent consider an angiotensin receptor blocker in preference to an ACE inhibitor

Important for meLess important

Losartan is the correct answer. Options in step two of the NICE hypertension management guideline include the addition of a thiazide diuretic, ACE inhibitor or angiotensin receptor blocker (ARB). ACE inhibitors are less effective in ethnically black populations and therefore ARB medications are recommended in their place in this population.

Ramipril is incorrect. ACE inhibitors are less effective in patients of Black African origin.

Atenolol is incorrect. This is a possible option for treatment of hypertension but is typically reserved for those patients with refractory hypertension on a combination of calcium channel blockers, ACE inhibitors (or ARBs) and thiazide diuretics.

Spironolactone is incorrect. This is a possible option for treatment of hypertension but is typically reserved for those patients with refractory hypertension on a combination of calcium channel blockers, ACE inhibitors (or ARBs) and thiazide diuretics. K+ should be < 4.5 when commencing.

Doxazosin is incorrect. This is a possible option for treatment of hypertension but is typically reserved for those patients with refractory hypertension on a combination of calcium channel blockers, ACE inhibitors (or ARBs) and thiazide diuretics.

Question:

A 15-year-old boy presents to the GP with a 5-week history of gradual onset left groin pain and a limp. The right leg is not affected and he is otherwise well, with no past medical or family history. On examination, there is a loss of internal rotation of the left leg. There is no swelling or warmth felt over the joints. His notes document normal vital signs, height in the 50th percentile and weight in the 95th percentile.

Which of the following is the most likely diagnosis?

A.Developmental dysplasia of the hip

B.Perthes' disease

C.Septic arthritis

D.Slipped capital femoral epiphysis

E.Transient synovitis

Answer:Slipped capital femoral epiphysis

Explanation:

Obesity is a risk factor for slipped capital femoral epiphysis

Important for meLess important

The correct option is slipped capital femoral epiphysis (classically seen in obese boys aged 10-15). It results from a weakness in the proximal femoral growth plate, which can be due to obesity, endocrine disorders or rapid growth. On examination, a loss of internal rotation of the affected leg is usually seen.

Perthes' disease can also present with groin pain, though it typically presents in 4 to 8-year-olds (Perthes' in Primary school, SUFE in Secondary school). Other risk factors include being male and having a lower socioeconomic status.

In septic arthritis, the child would more likely be systemically unwell, with a hot and swollen joint. This is likely to occur acutely. However, the vital signs have been documented as normal in this case making it an unlikely diagnosis.

Developmental dysplasia of the hip is usually identified much earlier, during the first year of life, in routine examinations of the hip (Barlow/Ortolani tests, limited hip abduction).

Transient synovitis is a diagnosis of exclusion. It usually presents in 2-12-year-olds and there may be a history of recent upper respiratory tract infection.

Question:

A 92-year-old woman is admitted to the hospital from a nursing home with a suspected gastrointestinal bleed. She has a past medical history of vascular dementia and end-stage breast cancer.

On examination, she is clinically dehydrated. The nursing home explains that she normally struggles to drink enough water owing to her comorbidities.

Na+ 153 mmol/L (135 - 145)

K+ 3.6 mmol/L (3.5 - 5.0)

Urea 9.1 mmol/L (2.0 - 7.0)

Creatinine 145 µmol/L (55 - 120)

The consultant prescribes 2L of 5% dextrose over 4 hours to correct her electrolyte abnormalities.

What complication is most likely following this fluid resuscitation regime?

A.Cardiac arrest

B.Central pontine myelinolysis

C.Cerebral oedema

D.Hyperosmolar hyperglycaemic state

E.Subacute degeneration of the spinal cord

Answer:Cerebral oedema

Explanation:

Correction of chronic hypernatraemia too fast predisposes to cerebral oedema

Important for meLess important

The most likely complication of this fluid regime is cerebral oedema. This patient has hypernatremia which is likely multifactorial. Due to her prolonged reduced fluid intake, she is likely to have a degree of chronic hypernatremia which should be corrected slowly over 48 hours to reduce her risk of cerebral oedema. Correcting hypernatremia too quickly can cause fluid to quickly diffuse into cells within the brain resulting in oedema and potentially leading to seizures, coma and death.

Cardiac arrest is not the correct answer. Rapid correction of hypernatraemia may cause cardiac arrest secondary to severe cerebral oedema but this is less likely. Cardiac arrest is a significant risk when correcting hypokalaemia too quickly.

IV 5% glucose is unlikely to cause hyperosmolar hyperglycaemic state (HSS) in this patient. While this fluid regime could transiently raise her blood glucose, it is unlikely to raise it to the extremely high levels seen in HHS (often >40mmol/L), especially as she has no evidence of having type 2 diabetes.

Central pontine myelinolysis is caused by the rapid correction of hyponatraemia, not hypernatremia. When hyponatraemia is correct too quickly the brain cannot adapt to the changing osmolarities quick enough. This results in too much water leaving the cells causing irreversible injury.

Subacute degeneration of the spinal cord is associated with vitamin B12 deficiency not rapid correction of hypernatremia. It is characterised by progressively worsening sensory and motor disturbances, visual changes and other neurological changes. It can be exacerbated by treating a coexisting folate deficiency before treating a B12 deficiency.

Question:

A woman who is 14 weeks pregnant presents as she came into contact with a child who has chickenpox around 4 days ago. She is unsure if she had the condition herself as a child. Blood tests show the following:

Varicella IgM Negative

Varicella IgG Negative

What is the most appropriate management?

A.Varicella zoster immunoglobulin

B.No action required

C.IV aciclovir

D.Varicella zoster vaccination

E.Varicella zoster vaccination + varicella zoster immunoglobulin

Answer:Varicella zoster immunoglobulin

Explanation:

Chickenpox exposure in pregnancy <= 20 weeks - if not immune give VZIG

Important for meLess important

The negative IgG indicates no previous exposure to chickenpox

Question:

A 58-year-old farmer attends the emergency department with his wife. He has a high fever and is sweating profusely. On examination he has several black blisters which produce foul smelling discharge.

Which of the following organisms is usually associated with this condition?

A.Group B streptococci

B.Staphylococcus aureus

C.Clostridium perfringens

D.Group A streptococci

E.Pseudomonas aeruginosa

Answer:Clostridium perfringens

Explanation:

Gas gangrene is a life-threatening bacterial infection with gangrene that can cause muscle necrosis, sepsis, gas production and ultimately, death.

There are two main ways that gas gangrene can occur, either traumatic (or surgical) inoculation of a wound with bacteria or spontaneous, often seen in immunocompromised patients.

There are multiple causes of gas gangrene but often clostrida species, particularly clostridium perfringens are implicated. Key features often begin with pain and then become systemic (fever, dehydration). This progresses on to skin changes, which are often seen as blisters which can burst produced a foul smelling discharge. Often crepitus can be heard on movement.

Question:

A 35-year-old man is referred to the neurology outpatient department with one month of progressive weakness. He had a diarrhoeal illness preceding events. He is from Ghana.

On examination, power is 4/5 at hip flexion and knee extension and this improves to 5/5 after a brief period of exercise. The knee reflexes are absent. The facial muscles and cranial nerves are normal.

Creatinine kinase 420 U/L (40-320)

EMG testing demonstrates an increment in muscle action potentials after exercise.

What is the likely diagnosis?

A.Guillain-Barré syndrome

B.Inclusion body myositis

C.Lambert-Eaton syndrome

D.Myasthenia gravis

E.Polymyositis

Answer:Lambert-Eaton syndrome

Explanation:

Lambert-Eaton syndrome or myasthenia gravis? Weakness in Lambert Eaton improves after exercise, unlike myasthenia gravis; which worsens after exercise

Important for meLess important

Lambert-Eaton syndrome (LES) is the correct answer. The patient presents with weakness of the lower limbs in a lower motor neuron pattern (weakness, areflexia) but this improves on exercise. Additionally, EMG testing demonstrates an increment in muscle action potentials after exercise. From the listed options, Lambert-Eaton syndrome is the only disorder that has these characteristic features. It is associated with small-cell lung cancer in approximately 60% of cases but can also present as an idiopathic disorder in younger patients where it is presumed to be autoimmune in origin.

Guillain-Barré syndrome is incorrect. This can cause a lower motor neuron distribution of weakness in the lower limbs and is often associated with a preceding infective illness (e.g. diarrhoea). However, the weakness would not clinically improve with exercise and the EMG would not show an increment in muscle action potentials after exercise. These findings are more suggestive of Lambert-Eaton syndrome.

Inclusion body myositis is incorrect. Typically, it is the finger flexors rather than the hip flexors that are affected in this disorder. The weakness is distal rather than proximal. Additionally, it affects an older age group and the EMG will be normal.

Myasthenia gravis is incorrect. This is a classic differential diagnosis of LES. However, in this disorder, the weakness is fatiguable, which means it worsens with exercise. Therefore, LES is more likely.

Polymyositis is incorrect. This could cause proximal myopathy and an elevated CK level. However, reflexes are normal in myositis and weakness would worsen with exercise rather than improve. Patients from Africa often have more elevated levels of creatinine kinase and in this context, the raised CK levels are likely reflective of this fact.

Question:

A 35-year-old man with schizophrenia has been on clozapine for five years and has been well controlled and stable for that time. However, at his most recent check-up, the clozapine levels were found to be above the recommended range and his dose is therefore reduced.

Which of the following is most likely to cause a rise in clozapine blood levels?

A.Alcohol abstinence

B.Omitting doses

C.Smoking cessation

D.Stress

E.Weight gain

Answer:Smoking cessation

Explanation:

Smoking cessation can cause a rise in clozapine blood levels

Important for meLess important

Smoking cessation can cause a significant rise in clozapine levels, and so it should be discussed with a psychiatrist before stopping smoking. Starting smoking, or smoking more, can reduce clozapine levels. Stopping drinking can also reduce levels, as alcohol binges can increase the level. Omitting doses will cause a reduction in clozapine levels, and stress and weight gain won't have significant effects on the level.

Question:

A patient with known chronic kidney disease (CKD) stage 4, presents to her GP with a 3-week history of worsening fatigue, thirst, anorexia, constipation, and general aches and pains. She confirms that she always takes her medication as prescribed, and that she 'has had kidney problems for a very long time'.

Blood tests reveal the following:

PTH 9.6 pmol/L (ref range: 1.05 - 6.83)

Calcium (adjusted) 3.2 mmol/L (ref range: 2.2 - 2.6)

Vitamin D 75 nmol/L (ref range: 40 - 100)

Phosphate 0.7 mmol/L (ref range: 0.7 - 1.5)

ALP 200 IU/L (ref range: 30 - 130)

What is the most likely underlying cause?

A.Secondary hyperparathyroidism

B.Hypoparathyroidism

C.Tertiary hyperparathyroidism

D.Hypothyroidism

E.Pseudohypoparathyroidism

Answer:Tertiary hyperparathyroidism

Explanation:

Prolonged, untreated secondary hyperparathyroidism can cause tertiary hyperparathyroidism

Important for meLess important

PTH = raised

Calcium = raised

Vitamin D = normal

Phosphate = low-normal

ALP = raised

The worsening fatigue, thirst, anorexia, constipation, and general aches and pains are all indicative to hypercalcaemia, which is confirmed in the blood tests. This therefore rules out secondary hyperparathyroidism (answer 1), hypoparathyroidism (answer 2), and pseudohypoparathyroidism (answer 5).

Although some of the patient’s symptoms (fatigue, constipation) may be explained by hypothyroidism, the blood tests would have been normal, thus excluding answer 4.

The only answer remaining is 3, which is correct and is further supported by the fact that the patient has a low-normal phosphate (rather than a high phosphate, as is found in secondary hyperparathyroidism). She is also known to have longstanding CKD 4, which is the most common cause of tertiary hyperparathyroidism.

Tertiary hyperparathyroidism usually occurs after prolonged secondary hyperparathyroidism – the

glands become autonomous, and so produce excessive PTH even after the cause of hypocalcaemia (in this case, CKD 4) has been corrected; this then causes the hypercalcaemia that typifies tertiary hyperparathyroidism.

See the notes below for the differentiation of types of hyperparathyroidism.

Question:

Jim is a 58 year old male who is found to have a clinic blood pressure of 158/96 mmHg in his GP practice. The GP then arranges ambulatory blood pressure monitoring, which shows an average blood pressure of 155/93 mmHg. Jim has angina for which he is prescribed a GTN spray, atenolol and aspirin. What medication would be most appropriate to implement next?

A.Indapamide

B.Amlodipine

C.Furosemide

D.Ramipril

E.Losartan

Answer:Amlodipine

Explanation:

Newly diagnosed patient with hypertension (> 55 years) - add a calcium channel blocker

Important for meLess important

Question:

Which one of the following statements regarding absence seizures is incorrect?

A.Typical age of onset of 3-10 years old

B.Sodium valproate and ethosuximide are first-line treatments

C.Seizures may be provoked by a child holding their breath

D.There is a good prognosis

E.Characteristic EEG changes are seen

Answer:Seizures may be provoked by a child holding their breath

Explanation:

Seizures are characteristically provoked by hyperventilation

Question:

A 72-year-old woman who takes bendroflumethiazide for hypertension is admitted to the Emergency Department. Admission bloods show the following:

Na+ 131 mmol/l

K+ 2.2 mmol/l

Urea 3.1 mmol/l

Creatinine 56 µmol/l

Glucose 4.3 mmol/l

Which one of the following ECG features is most likely to be seen?

A.Short PR interval

B.Short QT interval

C.Delta waves

D.J waves

E.U waves

Answer:U waves

Explanation:

Hypokalaemia - U waves on ECG

Important for meLess important

J waves are seen in hypothermia whilst delta waves are associated with Wolff Parkinson White syndrome.

Question:

You are working on rotation in a sexual health clinic. A 24-year-old male presents with mucopurulent urethral discharge and dysuria. He provides samples for investigation. You suspect a diagnosis of Chlamydia.

Which of the following laboratory techniques would commonly be used to confirm this diagnosis?

A.Direct light microscopy

B.Gram staining

C.Nucleic acid amplification testing

D.Culture and sensitivity

E.Lancefield grouping

Answer:Nucleic acid amplification testing

Explanation:

Nucleic acid amplification tests (NAATs) are the investigation of choice for Chlamydia

Important for meLess important

If a patient is suspected to have Chlamydia the investigation of choice would be to send samples for nucleic acid amplification tests (NAATs). These can be sent either via swabs or first-catch urine.

Direct culture is no longer routinely used in the diagnosis of Chlamydia.

Lancefield grouping is a technique in the organisation of Streptococci.

Gram staining is used to classify bacteria into two distinct groups, gram positive and gram negative. This relates to the uptake of stains, based around the make up of the bacterial cell walls. On its own gram staining would not be sufficient to identify a bacteria. Chlamydia is a gram negative bacterium.

Light microscopy is simply viewing a sample under a microscope and again in this scenario would not be able to efficiently provide a diagnosis.

Question:

A baby born at 35 weeks gestations via normal vaginal delivery is found to be irritable 48 hours after birth and suffers a convulsion. There is no obvious head trauma or swellings. Which one of the following cranial injuries is most likely to have occurred?

A.Caput succedaneum

B.Cephalohaematoma

C.Subaponeurotic haemorrhage

D.Intraventricular haemorrhage

E.Extradural haemorrhage

Answer:Intraventricular haemorrhage

Explanation:

Caput succedaneum is caused by pressure on the fetal scalp during the birthing process. It results in a large oedematous swelling and bruising over the scalp. Treatment is not required as the swelling reduces over a few days.

A cephalohaematoma may occur after a spontaneous vaginal delivery or following a trauma from the obstetric forceps or the ventouse. A haemorrhage results after the presidium is sheared from the parietal bone. The tense swelling is limited to the outline of the bone. It reduces over a few weeks - months.

A Subaponeurotic haemorrhage, also known as a subgaleal haemorrhage is rare and is due to a traumatic birth. It may result in the infant losing large amounts of blood.

An intracranial haemorrhage refers to subarachnoid, subdural or intraventricular haemorrhages. Subarachnoid haemorrhages are common and may cause irritability and even convulsions over the first 2 days of life. Subdural can following the use of forceps. Intraventricular haemorrhage mostly affects pre-term infants and can be diagnosed by ultrasound examinations.

Extradural haemorrhage is unlikely to occur during the birthing process.

Question:

A 24-year-old female presents to her general practitioner seeking contraception. She has a past medical history of spina bifida, for which she uses a wheelchair. She has a family history of endometrial cancer, smokes 5 cigarettes a day and regularly drinks 20 units of alcohol per week. Her observations show:

Respiratory rate 18/min

Blood pressure 95/68mmHg

Temperature 37.1ºC

Heart rate 92 bpm

Oxygen saturation 97% on room air

Which of the following would be a contraindication for starting the combined oral contraceptive pill for this patient?

A.Her alcohol consumption

B.Her family history of endometrial cancer

C.Her smoking history

D.Her wheelchair use

E.No contraindications exist and the combined oral contraceptive pill can be offered

Answer:Her wheelchair use

Explanation:

Wheelchair users should not be prescribed the COCP as first-line contraceptive, as they are 'UKMEC 3'- risks outweigh benefits

Important for meLess important

The correct answer is her wheelchair use.

The presence of oestradiol in the COCP increases patients risk of developing deep vein thrombosis (DVT). In patients who use a wheelchair, immobility is a further risk factor for developing DVTs. Consequently, the use of a COCP increases the risk of thromboses to a point that outweighs the benefits of using this form of contraception (UKMEC 3).

Her alcohol consumption is incorrect as alcohol has minimal effect on the effectiveness or side-effect profile of the COCP.

Her family history of endometrial cancer is incorrect, use of the COCP actually decreases the risk of developing both ovarian and endometrial cancer.

Her smoking history is incorrect as the COCP is only contraindicated in patients over the age of 35 who regularly smoke. Those smoking equal to or in excess of 15 cigarettes a day are UKMEC 4 and those who smoke less than 15 cigarettes per day are UKMEC 3.

No contraindications exist is incorrect as this patients wheelchair use is a contraindication to COCP use.

Question:

A 27-year-old woman presents to her GP with a multitude of symptoms causing her distress. For several months, she has felt very irritable and has trouble sleeping at night. She has lost weight despite no change to her diet or exercise levels. She always feels hot and her partner is complaining that she keeps the home thermostat too cool. The GP questions her mood and she feels generally irritable and anxious. On examination, her pulse feels fast and irregular, she has a slight tremor when the arms are outstretched, and has a palpable goitre. Blood tests are taken and the results are as follows:

Na+ 141 mmol/L (135 - 145)

K+ 4.2 mmol/L (3.5 - 5.0)

Bicarbonate 27 mmol/L (22 - 29)

Urea 5.4 mmol/L (2.0 - 7.0)

Creatinine 65 µmol/L (55 - 120)

Thyroid stimulating hormone (TSH) 0.12 mU/L (0.5-5.5)

Free thyroxine (T4) 37 pmol/L (9.0 - 18)

Given the likely diagnosis, the GP decides to refer onwards to the appropriate specialty.

Which medication should the GP also commence?

A.Bisoprolol

B.Carvedilol

C.Iodine

D.Propranolol

E.Propylthiouracil

Answer:Propranolol

Explanation:

Propranolol should be used in new cases of Graves' disease to help control symptoms

Important for meLess important

The description here, along with the results, is indicative of Graves' disease. Referring to endocrinology would be appropriate, as anti-thyroid medications such as carbimazole are usually initiated under their care. However, the GP should also commence propranolol to help block the adrenergic effects of excess thyroxine and control this patient's symptoms. Propranolol is a non-selective beta-blocker.

Bisoprolol is a beta-1 selective blocker, commonly used in the management of angina, hypertension, atrial fibrillation rate control and an adjunct in chronic heart failure. It would not be used for Graves' disease.

Iodine may be used in the management of an acute thyroid storm. This would be used in hospital by specialists - not in primary care by a GP, and not in a situation such as the one above.

Carvedilol is a mixed alpha- and beta-blocker. It is also used for hypertension and angina, as well as playing a role in the management of chronic heart failure. It would not be indicated here.

Propylthiouracil is an antithyroid medication that may be used to bring thyroid levels under control. This would not, however, be initiated by the GP - it would be started under secondary care. Generally speaking, carbimazole is used in preference to propylthiouracil as the first-line choice. With regards to the question, propranolol is the correct answer as the GP should start this for the patient's symptoms.

Question:

You have been asked to see a 42-year-old man who just underwent a cholecystectomy under general anaesthesia yesterday. The procedure was uncomplicated but now has started vomiting, and complaining of headache, and flank pain.

On examination his capillary refill time is 6s, blood pressure is 98/43mmHg and weakness of his limbs.

8am cortisol 1.5µg/dL 10-20µg/dL

ACTH 140ng/dL >100ng/dL

What is the most likely cause of his symptoms?

A.Etomidate

B.Isoflurane

C.Nitrous oxide

D.Propofol

E.Thiopental

Answer:Etomidate

Explanation:

Etomidate may result in adrenal suppression

Important for meLess important

Etomidate potentiates GABAa receptors. It is preferred in patients with cardiac pathology as it causes less hypotension compared to propofol and thiopental. Etomidate can however cause adrenal suppression so should be avoided in hypocortisolism.

Isoflurane is a volatile liquid anaesthetic agent used for induction and maintenance of anaesthesia. It can cause myocardial depression and malignant hyperthermia, so should be avoided if there was a history of cardiac pathology.

Nitrous oxide (NO) is safe for the maintenance of anaesthesia in this case. NO would be contraindicated if the patient was in the first trimester of pregnancy, or had any injuries such as pneumothorax.

Propofol is very likely to be used to induce general anaesthesia in this case. It has some anti-emetic effects - useful for patients with a high risk of postoperative vomiting.

Thiopental is a barbiturate that has an extremely rapid onset of action, meaning it is the agent of choice for rapid sequence induction. Since this is an elective procedure, it is not indicated.

Question:

A healthy 2-month-old infant is brought to the GP surgery by his mother to receive his first vaccinations. Which of the following vaccinations should he be given during this visit?

A.'6-1 vaccine' (diphtheria, tetanus, whooping cough, polio, Hib and hepatitis B), one dose Men B (vaccine for group B meningococcal disease) and one dose of Rotavirus vaccine

B.'6-1 vaccine' (diphtheria, tetanus, whooping cough, polio, Hib and hepatitis B), one dose of PCV and one dose of Men C (vaccine for group C meningococcal disease)

C.'6-1 vaccine' (diphtheria, tetanus, whooping cough, polio, Hib and hepatitis B) and one dose of Men C

D.'6-1 vaccine' (diphtheria, tetanus, whooping cough, polio, Hib and hepatitis B), one dose of Men C and one dose of Rotavirus vaccine

E.'6-1 vaccine' (diphtheria, tetanus, whooping cough, polio, Hib and hepatitis B), one dose of MMR (Measles, Mumps and Rubella vaccine) and one dose of Rotavirus vaccine

Answer:'6-1 vaccine' (diphtheria, tetanus, whooping cough, polio, Hib and hepatitis B), one dose Men B (vaccine for group B meningococcal disease) and one dose of Rotavirus vaccine

Explanation:

The immunisation schedule is an important topic to learn for paediatrics. However, it should be noted that advances in medicine mean new vaccines are being added to the schedule all the time. It is important to keep up to date with the latest guidance.

Question:

A heroin user is referred to the local drugs unit for community based detoxification. Which heroin substitutes is he most likely to be offered?

A.Methadone or morphine

B.Lofexidine or naloxone

C.Methadone or buprenorphine

D.Methadone or naloxone

E.Methadone or lofexidine

Answer:Methadone or buprenorphine

Explanation:

Question:

You are a F1 doctor on the respiratory ward. The nurse bleeps you to review a 67-year-old man with chronic obstructive pulmonary disease and paroxysmal atrial fibrillation who you are currenly looking after. Around 30 minutes ago he developed retrosternal chest pain which has not settled with Gaviscon. The nurse has just done his observations: pulse 90/min, oxygen saturations 95% on room air, blood pressure 134/82 mmHg, The ECG is shown below:

© Image used on license from Dr Smith, University of Minnesota

You plan to discuss the case with your senior. What course of action are they likely to recommend?

A.Thrombolyse the patient on the ward

B.Transfer the patient to the coronary care unit

C.Check the digoxin level

D.Check the serum potassium

E.Politely ask the nurse to repeat the ECG due to lead misplacement

Answer:Transfer the patient to the coronary care unit

Explanation:

If you suspect acute coronary syndrome then obviously the first step is to work through the basics: oxygen (if appropriate), aspirin, nitrates and morphine.

This ECG shows severe myocardial ischaemia with ST depression in V2-V6. There is also ST elevation in aVR which is highly suggestive of either three vessel disease or left main stem disease. This patient does not meet the thrombolysis criteria.

This actual patient went on to have a PCI which showed 100% RCA (probably chronic), 99% LAD, and 95% Circumflex disease. He underwent an urgent CABG resulting in a very satisfactory outcome.

Question:

A 73-year-old man presents to his GP complaining of gradual onset horizontal diplopia which is especially bad when reading.

His past medical history includes COPD and small cell lung carcinoma, for which he recently finished his last cycle of chemotherapy. He has lost 10% of his body weight in the last three months.

Examination of the pupils reveals a medially pointing right eye and a normal left eye. He has no peripheral neuropathy.

What is the most likely cause of his presentation?

A.Brain metastases

B.Cavernous sinus thrombosis

C.Lambert-Eaton syndrome

D.Neuromyelitis optica

E.Ocular myasthenia gravis

Answer:Brain metastases

Explanation:

CN6 palsy manifesting as diplopia could be the first sign of brain metastasis

Important for meLess important

Brain metastases. A sixth nerve palsy can be the first sign of metastases to the brain. The CNVI palsy can be inferred from the man's medially diverted eye, suggesting his lateral rectus muscle is being overpowered by other extraocular muscles at rest. Furthermore, lateral rectus is needed for reading, hence the exacerbation of horizontal diplopia during this activity. The abducens nerve is the thinnest cranial nerve, and also has the longest intracranial course. As a result, it is susceptible to compression when space-occupying lesions such as brain metastases develop in patients.

Cavernous sinus thrombosis. This is incorrect. Cavernous sinus thrombosis can complicate facial infection, orbital cellulitis, pharyngitis, and other conditions. It typically presents with fever, ophthalmoplegia, and other eye findings such as periorbital swelling over an acute/subacute timeframe. While it can cause diplopia, it wouldn't typically give weight loss, which could point towards active cancer. With his history of lung cancer, brain metastases are more likely. Even if patients finish courses of chemotherapy, there is no guarantee that cancer won't progress or spread.

Lambert-Eaton syndrome. Small cell lung carcinomas can cause paraneoplastic syndromes, such as Lambert-Eaton syndrome (LES). Cases of LES are associated with an underlying malignancy 60% of the time. However, ocular involvement in LES is unusual, and it is much more likely to present with lower-limb dominant proximal weakness, making this diagnosis less likely than brain metastases.

Neuromyelitis optica. Incorrect. This is a rare autoimmune demyelinating disorder that causes degeneration of the spinal cord and the optic nerve. While it does progress over a few months, it would present with relapses of rapid bilateral vision loss and weakness in the lower limbs among other symptoms. The history of weight loss and previous diagnosis of cancer suggests brain metastases.

Ocular myasthenia gravis. It is unusual for myasthenia gravis to develop in the first decade and after the seventh, although not impossible. Myasthenia gravis can be isolated to eye movements, which can mimic cranial nerve palsies. While it could be argued that fatiguability is indicated by the onset of diplopia while reading, myasthenia gravis is a rare condition. The fact he has a history of recent cancer (and lung cancer, which often metastasises to the brain), coupled with a worsening neurological presentation should alert the clinician to be considering brain metastases.

Question:

A 60-year-old male presents to his GP due increased frequency of falls in the last 6 months. He feels that walking is more difficult than it used to be – he cannot lift his feet off the ground properly. Watching him walk into the room revealed a shuffling gait. He also complains of dizziness, particularly on standing, and admits that he has had some new erectile dysfunction recently. On examination, there is right sided upper and lower limb rigidity. You notice a tremor in his right hand. He has no past medical history.

What is the most likely diagnosis?

A.Parkinson’s disease

B.Multiple system atrophy

C.Progressive supranuclear palsy

D.Drug induced parkinsonism

E.Huntington’s disease

Answer:Multiple system atrophy

Explanation:

Parkinsonism with associated autonomic disturbance (atonic bladder, postural hypotension) points towards Multiple System Atrophy

Important for meLess important

Multiple system atrophy is a cause of Parkinsonism which can be difficult to differentiate from idiopathic Parkinson’s disease. Key features to help you differentiate are the presence of unilateral symptoms, and more severe/early onset autonomic dysfunction (postural hypotension/erectile dysfunction).

Progressive supranuclear palsy would be indicated by the presence of ocular pathology. Drug-induced Parkinsonism can also cause unilateral symptoms, but the patient in this question has no past medical history and therefore this is almost certainly not the cause. Although Huntington’s disease can cause unsteady gait, chorea is the associated movement disorder, not tremor.

Question:

You are seeing a woman for her 6-week follow up appointment following a normal vaginal delivery. She wishes to cease breastfeeding as her baby requires specialised formula feeds.

Which medication can be used to suppress lactation in this case?

A.Cabergoline

B.Norethisterone

C.Misoprostol

D.Ursodeoxycholic acid

E.Tilactase

Answer:Cabergoline

Explanation:

Cabergoline is the medication of choice in suppressing lactation when breastfeeding cessation is indicated

Important for meLess important

Cabergoline is a dopamine receptor agonist which inhibits prolactin production causing suppression of lactation.

Norethisterone is a progestogen, it has no effect on lactation. Misoprostol is used to soften the cervix in induction of labour. Ursodeoxycholic acid is a bile acid chelating agent used in cholestasis of pregnancy. Tilactase is a lactase enzyme supplement for people with lactose intolerance.

Question:

A 33-year-old male presents after his partner encouraged him to see the GP. He has had hyperarousal to loud noises and difficulty concentrating at work following a stay in the Intensive Care Unit 6 weeks ago. His partner did some reading online and feels he is suffering from an acute stress disorder. You advise him that he has post-traumatic stress disorder (PTSD) and discuss treatment options. He asks what the difference is, so that he can explain it to his partner. You advise there are similarities in the presentation and the main difference is temporal.

What is the earliest stage after the event that you could confirm this diagnosis?

A.2 weeks

B.4 weeks

C.6 weeks

D.8 weeks

E.12 weeks

Answer:4 weeks

Explanation:

Acute stress disorder is defined as an acute stress reaction that occurs in the 4 weeks after a traumatic event, as opposed to PTSD which is diagnosed after 4 weeks

Important for meLess important

4 weeks is the correct answer. PTSD can be diagnosed after 4 weeks.

All of the other options are incorrect.

A presentation of these symptoms at 2 weeks would suggest acute stress disorder.

Acute stress disorder and PTSD have similar features. In PTSD this includes:

Re-experiencing: flashbacks, nightmares, repetitive and distressing intrusive images

Avoidance: avoiding people, situations or circumstances resembling or associated with the event

Hyperarousal: hypervigilance for threat, exaggerated startle response, sleep problems, irritability and difficulty concentrating

Emotional numbing - lack of ability to experience feelings, feeling detached

Question:

A 27-year-old man presents with persistent pain upon defecation for the past 3 months. He has noticed small amounts of fresh blood when wiping. He is otherwise completely well in himself and denies any weight loss. He has no significant family history. Inspection of the anus confirms the diagnosis. Initial treatment with laxatives and dietary modification has been unsuccessful.

Which of the following is the most appropriate next step in management?

A.Botulinum toxin injection

B.Rubber band ligation

C.Topical glyceryl trinitrate

D.Topical hydrocortisone

E.Topical zinc sulfate monohydrate

Answer:Topical glyceryl trinitrate

Explanation:

Chronic anal fissure - topical glyceryl trinitrate

Important for meLess important

The correct answer is topical glyceryl trinitrate. The diagnosis here, given the acute pain upon defecation and fresh blood, is an anal fissure. Given the chronicity of its duration and failure to improve with conservative measures, including stool softeners and dietary advice, an appropriate step to take now is to trial topical glyceryl trinitrate.

Botox injection is incorrect. This would be further down the line if topical measures also failed to control symptoms.

Rubber band ligation would be used to treat haemorrhoids if initial measures were not successful. Haemorrhoids would present differently - generally painless unless thrombosed.

Topical hydrocortisone is another option to settle haemorrhoids, available in over-the-counter preparations. It is not used for anal fissures.

Topical zinc sulfate monohydrate is found in most over-the-counter preparations for haemorrhoids. It is not routinely used for anal fissures.

Question:

A 75-year-old male was admitted to the hospital with community-acquired pneumonia. He was treated with intravenous antibiotics and improved over the course of the past two days.

That night he was found not breathing in his room by his nurse. He was confirmed and verified dead by the medical night's doctor.

Which of the following is the most appropriate action?

A.Confirm the death again with the presence of two doctors

B.Order a whole body computed tomography scan

C.Order chest x-ray

D.Refer to the consultant to confirm death

E.Refer to the coroner

Answer:Refer to the coroner

Explanation:

If the deceased has an unknown cause of death then they should be discussed with the coroner

Important for meLess important

If the deceased has an unknown cause of death then they should be discussed with the coroner. This patient's death is not explained by his community-acquired pneumonia as he was improving; thus, he must be referred to the coroner for investigation.

Two doctors are not required confirm a death; the death has already be confirmed and verified by the medical night's doctor.

It is not the medical team's responsibility to investigate the cause of death if the patient has already passed away; thus, ordering a CT scan is not indicated in this patient.

Similarly, ordering a chest x-ray in this patient is not required.

A senior consultant is not required to confirm the patient's death.

Question:

A 75-year-old female was recently started on alendronate for treatment of osteoporosis following a fragility fracture. She returns to your clinic as she has suffered troubling upper gastrointestinal side effects. What is the most appropriate next step in her management?

A.Continue alendronate

B.Change alendronate to strontium ranelate

C.Change alendronate to risedronate

D.Change alendronate to raloxifene

E.Change alendronate to denosumab

Answer:Change alendronate to risedronate

Explanation:

NICE guidance recommends that if patients suffer significant upper gastrointestinal side effects from the use of alendronate, then this should first be changed to risedronate or etidronate

Question:

A 43-year-old woman presents with acute leg swelling after starting nifedipine for consistently raised blood pressure. She is visibly upset and she already takes 10mg of ramipril each day. You stop nifedipine and document an intolerance in her medical record. You note that she also developed leg swelling on amlodipine and a rash on verapamil in the past. Her blood pressure rises again after amlodipine is stopped.

What is the next medication that could be added?

A.Atenolol

B.Candesartan

C.Diltiazem

D.Indapamide

E.Methyldopa

Answer:Indapamide

Explanation:

In a hypertensive patient < 55 years old who is on an ACE-i and is intolerant to calcium channel blockers, thiazide-like diuretics are the next line therapy

Important for meLess important

Indapamide - this is the correct answer. The next step in the hypertension pathway is to give a thiazide-like diuretic because she is intolerant to calcium channel blockers. Drug intolerance is the inability to tolerate any adverse effects of the medication. This is opposed to tolerance which is defined as the ability to tolerate the adverse effects and continue the medication.

Atenolol - this is incorrect. Beta-blockers may be offered as a fourth-line intervention, depending on the potassium level (see explanation below). However, they are no longer part of the initial management of hypertension and should be considered alongside seeking specialist advice when other interventions have failed.

Candesartan - this is incorrect. She is already on ramipril (ACEI) and an ARB should not be co-prescribed with an ACE inhibitor unless directed by a specialist.

Diltiazem - this is incorrect as diltiazem is a calcium channel blocker and she has been found to be intolerant to this class of medication (verapamil). These are both non-dihydropyridine calcium-channel blockers and have been found to have significant cross-reactivity in sensitive individuals (DOI 10.1157/13077752, DOI 10.5070/D39h3065pb).

Methyldopa - this is incorrect. Methyldopa is only really used in cases of gestational hypertension. It is rarely used for hypertension in adults and is not a part of the NICE pathway.

Question:

A 60-year-old lady with heart failure and atrial fibrillation present to the emergency department with nausea, vomiting and confusion. After further investigations, her digoxin levels are abnormally high. Which of the following may have precipitated her current condition?

A.Hyponatraemia

B.Hyperchloremia

C.Hypokalaemia

D.Hypermagnesaemia

E.Hypocalcaemia

Answer:Hypokalaemia

Explanation:

Hypokalaemia predisposes patients to digoxin toxicity

Important for meLess important

This question is asking about which electrolyte abnormalities that can precipitate digoxin toxicity. Therefore the correct answer is hypokalaemia.

Other electrolyte abnormalities that are known to precipitate digoxin toxicity include:

Hypomagnesaemia

Hypercalcaemia

Hypernatraemia

However none of those listed above ar other options

Question:

A 32-year-old woman attends her GP complaining of general malaise for a week. She complains of headache and mild abdominal pain. She denies any diarrhoea and states that she has been severely constipated. She has just returned from a 3-week holiday in India. On examination her temperature is 38.5ºC, she appears bloated, and there is a sparse macular rash on her chest.

What is the likely organism responsible for this presentation?

A.Campylobacter jejuni

B.Escherichia coli

C.Giardia lamblia

D.Salmonella typhi

E.Shigella sonnei

Answer:Salmonella typhi

Explanation:

Although salmonella is a recognised cause of diarrhoea, constipation is more common in typhoid

Important for meLess important

This is a classic presentation of typhoid fever with rose spots. Be aware that constipation is a big clue to typhoid fever.

Infection with Campylobacter jejuni typically presents with abdominal pain and bloody diarrhoea.

E. coli is a common cause of watery diarrhoea. Certain strains such as E. coli O157:H7 can cause severe abdominal cramping with bloody diarrhoea and vomiting.

Giardiasis can present with similar symptoms of bloating and abdominal pain but is usually associated with chronic diarrhoea.

Shigellosis typically causes abdominal pain and diarrhoea which may or may not be bloody.

Question:

An 80-year-old man presents to the emergency department with a 2 day history of increasing confusion and rigors. He has a history of prostate cancer under active surveillance, and 3 days ago had a trans-rectal ultrasound guided prostate biopsy. His full blood count on admission shows the following:

Hb 136 g/L Male: (135-180)

Female: (115 - 160)

Platelets 200 \* 109/L (150 - 400)

WBC 3.01 \* 109/L (4.0 - 11.0)

Neuts 0.89 \* 109/L (2.0 - 7.0)

What is the most likely cause of this man's neutropaenia?

A.Aplastic anaemia

B.Kostmann's syndrome

C.Myelofibrosis

D.Prostate cancer

E.Sepsis

Answer:Sepsis

Explanation:

Severe sepsis may result in neutropaenia

Important for meLess important

Urosepsis is a life threatening complication which can occur after trans-rectal ultrasound guided prostate biopsy. In a man who is three days post prostate biopsy, presenting with confusion and rigors, this is an important differential. Sepsis can also result in neutropaenia, making this the correct answer.

Kostmann's syndrome is a congenital syndrome, of which one of the key features is neutropenia. You would expect it to present in infancy with severe bacterial infections, and is unlikely to present in an 80-year-old man making Kostmann's syndrome an unlikely cause of this patient's neutropaenia.

Aplastic anaemia involves pancytopenia - the absence of low haemoglobin or thrombocytopaenia in this case makes this unlikely to be the cause of the neutropaenia.

Myelofibrosis is a myeloproliferative neoplasm resulting in fibrosis of the bone marrow, which leads to a lack of production of normal blood cells. In myelofibrosis, the earliest sign in the blood results is neutropaenia, without anaemia or thrombocytopenia. The spleen can compensate for red blood cell and platelet production in early disease. As disease progresses, the spleen production tapers off and red blood cell and platelet numbers begin to fall also. However, the incidence of myelofibrosis is much lower than sepsis -therefore in this case, especially with the history of confusion and rigors given, sepsis is much more likely to be the cause of the neutropaenia than myelofibrosis.

Prostate cancer itself does not usually cause neutropenia. However, chemotherapy is a common cause of neutropaenia. This man is under active surveillance for his prostate cancer, however, which means he is not undergoing chemotherapy or radiotherapy for his prostate cancer. Therefore, this is unlikely to be the cause of this patient's neutropaenia.

Question:

A 53-year-old female with advanced lung cancer presents to the emergency department with worsening generalised abdominal pain. The patient appears anxious and explains to you that she also has been suffering from nausea, constipation, and bony pain.

What is this patient's admission ECG likely to show?

A.Alternating QRS amplitude

B.Downsloping ST depression with biphasic T waves

C.Shortening of the QT interval

D.Small P waves and QRS widening

E.U waves, PR interval elongation, and ST depression

Answer:Shortening of the QT interval

Explanation:

The main ECG abnormality seen with hypercalcaemia is shortening of the QT interval

Important for meLess important

The correct answer is 'shortening of the QT interval'. This patient is presenting with classical signs of hypercalcemia of malignancy (bones, stones, and psychiatric moans). A common ECG finding in hypercalcemia is QT interval shortening, making this the correct answer. For reference, management of acute hypercalcemia is usually with rehydration.

'Alternating QRS amplitude' is incorrect; this describes electrical alternans which is a classical finding in pericardial effusion.

'Downsloping ST depression with biphasic T waves' is incorrect; this may be seen in myocardial ischaemia or digoxin toxicity.

'Small P waves and QRS widening' is incorrect as this is more commonly associated with hyperkalaemia (along with tall-tented T waves).

'U waves, PR interval elongation, and ST depression' is incorrect as this is more commonly associated with hypokalaemia.

Question:

An 82-year-old female is brought to the emergency department after being found collapsed on the floor at home. On taking a history from the patient, you learn that she was lying on the floor for around 24 hours. She has no past history of chronic kidney disease. After considering this patient, you suspect her acute kidney injury (AKI) is a result of rhabdomyolysis. Below are the patient's urea and electrolyte results:

Na+ 123 mmol/L

K+ 5.5

Adjusted Ca2+ 2.4 mmol/L

Mg2+ 0.7 mmol/L

Cl- 94 mmol/L

Urea 3.9 mmol/L

Creatinine 103 μmol/L

What other investigation should be performed first-line to establish the likely cause of her AKI?

A.CT head

B.CT kidney, ureters, bladder

C.Serum creatine kinase

D.Serum myoglobin

E.Urine output

Answer:Serum creatine kinase

Explanation:

Rhabdomyolysis can cause parenchymal acute kidney injury and is characterised by elevated plasma creatine kinase (CK)

Important for meLess important

The diagnosis of rhabdomyolysis is supported by the history and the blood urea:nitrogen ratio blow 40 (indicative of a renal cause of AKI). Creatine kinase is the correct answer, as this is the first blood investigation which should be performed to confirm the diagnosis.

CT head is incorrect, while this may be indicated in this patient, it would serve no role in identifying the cause of her AKI.

CT kidney, ureters, bladder is incorrect as this would be indicated for evaluation of a suspected renal stone.

Serum myoglobin is incorrect. While this would be raised in cases of rhabdomyolysis, it should not be used as a first-line investigation for the condition.

Urine output is incorrect, in cases of pre- or intra-renal AKI, urine output merely provides information regarding the glomerular filtration rate.

Question:

A 5-year-old boy is seen in the Minor Injury Unit after falling in the playground. His mother observed the fall and describes him falling on an outstretched hand.

The x-ray is shown below

© Image used on license from Radiopaedia

Which one of the following best describes this injury?

A.Colles' fracture

B.Salter-Harris type 1 fracture

C.Salter-Harris type 2 fracture

D.Buckle fracture

E.Greenstick fracture

Answer:Buckle fracture

Explanation:

Buckling of the cortex of the distal radius is seen without a distinct fracture line. Owing to the elasticity of bone in children, axial trauma leads to deformity, rather than a true fracture, resulting in a buckle fracture.

Question:

You are phoned for advice. The parents of a 19-year-old man have just been messaged by their son who is currently backpacking in Thailand. Earlier in the day he was bitten by a dog whilst staying in a rural community. Prior to travelling, he received vaccination against rabies as he was going to be visiting many rural areas. What is the most appropriate advice?

A.He should increase his fluid intake by around 1L a day as a precaution

B.He should be protected given the previous vaccination but should monitor for any changes in salivation over the next 72 hours

C.He should see a local doctor to request antibiotic therapy

D.He should urgently seek local medical attention for consideration of booster vaccination + antibiotic therapy

E.He should take the next flight home so he can be observed for any symptoms of rabies

Answer:He should urgently seek local medical attention for consideration of booster vaccination + antibiotic therapy

Explanation:

Rabies is nearly always fatal if untreated. Whilst you are not expected to remember all the countries where there is a high risk of rabies it is clear that being bitten by a dog in a rural area represents a risk. He needs to urgently see a local doctor as booster vaccination is indicated to minimise his risk of developing rabies. Flying home simply delays the most important intervention.

Question:

A 52-year-old woman presents to surgery seeking advice regarding contraception. She has recently started in a new relationship but is unsure if she requires contraception, as she thinks she may be going through the menopause. She is experiencing hot flushes and her last period was 7 months ago. What is the most appropriate advice?

A.She no longer requires contraception

B.Contraception is needed until 12 months after her last period

C.Contraception is needed until 36 months after her last period

D.Contraception is needed until 18 months after her last period

E.Contraception is needed until 24 months after her last period

Answer:Contraception is needed until 12 months after her last period

Explanation:

Need for contraception after the menopause

12 months after the last period in women > 50 years

24 months after the last period in women < 50 years

Important for meLess important

Question:

A 69-year-old gentleman has been under your care for an acute exacerbation of COPD. It is his third admission for his COPD in the last twelve months and has had one previous ITU admission.

So far on the ward, he has received treatment with back-to-back salbutamol and ipratropium nebulisers, oral prednisolone and intravenous theophylline. He is also receiving a course of intravenous co-amoxiclav and clarithromycin due to a suspected infectious cause.

His latest results are as follows:

Obs:

BP 142/94 mmHg

HR 92/min

RR 25/min

SaO2 78%

Temp 38.4ºC

Arterial Blood Gas:

pH 7.29

PaO2 8.0 kPa

PaCO2 9.2 kPa

HCO3- 38 mmol/L

BE +7

Which of the following is the key indicator for starting this patient on non-invasive ventilation?

A.Previous ITU admission for COPD

B.PaO2 <10.6 kPa and pH <7.35

C.Failure to respond to intravenous theophylline

D.PaCO2 >6 kPa and pH <7.35

E.SaO2 <88%

Answer:PaCO2 >6 kPa and pH <7.35

Explanation:

NIV should be considered in all patients with an acute exacerbation of COPD in whom a respiratory acidosis (PaCO2>6kPa, pH <7.35 ≥7.26) persists despite immediate maximum standard medical treatment

Important for meLess important

This patient is clearly very unwell, with an infectious exacerbation of their COPD and a significant respiratory acidosis. British Thoracic Society guidelines state that in patients with an acute exacerbation of COPD in whom there is a persistent respiratory acidosis despite maximal medical therapy, non-invasive ventilation (NIV) should be considered.

This patient has already had maximal standard medical therapy in the form of nebulisers, steroids and theophylline. While the other options are all concerning features of this patient's condition, it is the findings of a PaCO2 >6 kPa and pH <7.35 that are an indication for commencement of NIV.

Question:

A 2-year-old girl is brought to her GP because her mother has noticed she is constantly itching her bottom at night. Her mother says she has noticed some strange looking white bits when she wipes her daughters bottom following a bowel motion. What is the most appropriate management option?

A.Prescribe 14 days of daily miconazole for whole household and issue hygiene advice.

B.Issue hygiene advice only.

C.Prescribe a single dose of mebendazole for the daughter and issue hygiene advice.

D.Prescribe a single dose of mebendazole for the whole household and issue hygiene advice.

E.Prescribe topical clotrimazole for 2 weeks and issue hygiene advice.

Answer:Prescribe a single dose of mebendazole for the whole household and issue hygiene advice.

Explanation:

Household contacts of patients with threadworms should be treated even if they have no symptoms

Important for meLess important

This child is highly likely to have a threadworm infection with symptoms of perianal itching that is worse at night. It is also possible to see threadworms, described as small threads of slowly-moving white cotton either around the anus or in the stools.

The risk of transmission in families is as high as 75%, and asymptomatic infestation is common. For this reason an anthelmintic drug (mebendazole) should be given as a single dose to all household members.

Question:

A 76-year-old retired boiler engineer presents with a 3-week history of a cough following a coryzal illness. He was a heavy smoker until around five years ago. An x-ray is performed:

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What does the chest x-ray demonstrate?

A.Chronic obstructive pulmonary disease

B.Bronchiectasis

C.Asbestosis

D.Pleural plaques

E.Lung cancer

Answer:Pleural plaques

Explanation:

Calcified pleural plaques can be seen clearly in both lung fields and along the diaphragm.

Question:

A 64-year-old never-smoker with no significant past medical history presents to his GP with a several-day history of cough with green sputum, fatigue and breathlessness.

On examination of the chest, coarse crackles are heard in the lower right zone. Observations are as follows:

Respiratory rate: 20 breaths per minute

Oxygen saturation: 97% on air

Heart rate: 80 beats per minute

Blood pressure: 110/75mmHg

Temperature: 38.1ºC

Abbreviated mental test score: 10/10

The patient takes no regular medication and has no allergies.

What is the most appropriate treatment?

A.Admit to hospital for intravenous antibiotics

B.Discharge with oral amoxicillin

C.Discharge with oral clarithromycin

D.Discharge with oral doxycycline

E.Discharge with reassurance and GP follow-up in 7 days

Answer:Discharge with oral amoxicillin

Explanation:

Amoxicillin is the first-line antibiotic for low severity community-acquired pneumonia

Important for meLess important

Discharge with oral amoxicillin is correct as this is the first-line oral antibiotic for patients presenting with symptoms of community-acquired pneumonia (CAP). This patient has a new cough and temperature with purulent sputum and focal chest signs (together making this presentation more likely CAP than the differential of acute bronchitis). Although consolidation on chest x-ray would confirm the diagnosis, NICE recommends that chest x-ray is not usually initially required for suspected CAP managed in primary care, unless the diagnosis is uncertain or the patient is at risk of underlying lung pathology, such as lung cancer. This patient can, therefore, be treated immediately as suspected CAP. A CRB-65 score can be calculated to ascertain whether the patient is well enough to stay in the community. This patient scores 0 (confusion is not present, the respiratory rate is under 30, blood pressure is over 90/60 mmHg, and age is under 65). Patients with a score of 0 can usually be managed in the community, taking clinical judgement into account also (e.g. this patient has normal pulse oximetry, no documented past medical history or frailty and does not meet the criteria for sepsis). An antibiotic should be offered to all those with CAP; the first-line antibiotic in CRB 65 0 CAP is amoxicillin.

Admit to hospital for intravenous antibiotics is required for those with a CRB-65 score of 3, recommended for those with a score of 2 and may be required for those with a score of 1. This patient has a score of 0, so hospitalisation is not immediately necessary. Hospitalisation may still be needed in patients with a score of 0 depending on clinical factors such as low oxygen saturations, inability to manage at home, general frailty and co-morbidities that increase the risk of complications. None of these appear to be relevant in this patient, who is typically well, takes no medications, has normal observations (other than a slightly raised temperature) and has typical symptoms of CAP.

Discharge with oral clarithromycin is incorrect. Clarithromycin is a macrolide antibiotic and may be used if amoxicillin is unsuitable, such as in penicillin allergy. There is nothing in this brief to suggest that amoxicillin as a first-line antibiotic is not appropriate. Macrolides are first-line in suspected atypical pneumonia. However, this patient has a short history of cough, green sputum, pyrexia, lethargy and shortness of breath. These are all symptoms of typical CAP. Symptoms of atypical pneumonia are varied and depend on the causative pathogen, but include a longer prodrome, headache, rash and sore throat.

Discharge with oral doxycycline is incorrect. Doxycycline is a tetracycline antibiotic and, like clarithromycin, may be used in CRB 65-0 CAP if amoxicillin is not appropriate. As above, there is nothing to suggest the first line choice of amoxicillin is inappropriate.

Discharge with reassurance and GP follow-up in 7 days is not correct. NICE recommends that all those with suspected CAP be prescribed an appropriate antibiotic as soon as possible to reduce the risk of complications such as sepsis. The presence of focal chest signs and purulent sputum, as well as pyrexia, suggest that this is a bacterial CAP rather than a viral infection.

Question:

A 24-year-old man is brought to his GP by his mother as she is anxious that since puberty he has become socially withdrawn. He doesn’t take part in after-work events despite being regularly invited. He concerned his mother recently by stating that he doesn’t need, or want, any friends. He has no past medical history of note, denies alcohol dependence, and has recently had a promotion at work. During the consultation, he remains with his arms folded and does not engage. There is no evidence of affection towards his mother when she cries due to her concern.

What is the patient’s most likely diagnosis?

A.Avoidant personality disorder

B.Emotionally unstable personality disorder

C.Paranoid personality disorder

D.Schizoid personality disorder

E.Schizotypal personality disorder

Answer:Schizoid personality disorder

Explanation:

A young man is seen with his mother. She is concerned that he is socially withdrawn. He is bright and is doing well in his job as a engineer. During the consultation he seems emotionally cold and has little interest in either praise or criticism - schizoid personality disorder

Important for meLess important

This patient is presenting with symptoms consistent with ‘cluster A’ (odd/eccentric) schizoid personality disorder (SPD). SPD is characterised by a tendency towards solitariness, lack of interest in social relationships, and emotional detachment. Symptoms typically start in adolescence. It is not typically managed with pharmacological medications other than short-term treatment of other acute co-occurring conditions (such as depression). It has a correlation with negative outcomes (with bullying and poor success in relationships being commonly noted in outcome studies of patients). Due to the preferred nature of SPD patients to be isolated, there is a paucity of clinical data as patients typically will often not seek treatment.

Avoidant personality disorder is a ‘cluster C’ (anxious/fearful) personality disorder characterised by a tendency to view oneself as inferior to others and reluctance to engage in social situations due to this. Despite this isolation, there is often a strong desire by the person to have social contact (differing from the schizoid patient’s desire to have no connections). Treatment is usually with psychotherapy and exposure treatment once a trusting relationship is gained.

Emotionally unstable personality disorder is characterised by a distorted sense of self and unstable interpersonal relationships. The patients will often engage in dangerous behaviours and struggle with fears of abandonment - rather than this patient who appears emotionally detached. It is believed to be linked to the frontolimbic neuronal network. Quetiapine and SSRI medications are widely prescribed for this population and it affects women three times more commonly than men.

Paranoid personality disorder is characterised by paranoid delusions and suspiciousness towards others. They think they are in danger and will vigilantly scan their environment for evidence of foul play against them. The ICD-10 includes a combative sense of self-righteousness outside of keeping with the situation and a refusal to forgive insults as part of their criteria. It is seen in 2-10% of psychiatric outpatients.

Schizotypal personality disorder is characterised by thought disorder, derealisation, transient psychosis and unconventional beliefs. They will commonly have paranormal and superstitious beliefs. As with schizoid personality disorder, this is a ‘cluster A’ personality disorder. In a similar way to schizoid personality disorder, patients may socially withdraw - however this is due to paranoia and obsessive ruminations rather than solely due to emotional detachment.

Question:

A 26-year-old man is admitted to the psychiatric ward under section 2 of the mental health act for suspected first-episode psychosis. During his mental state examination, burns are noticed on his arms and he mutters that the insects are burrowing into his skin. He eludes that the burns are due to bleach. The assessing psychiatrist could not see any insects, and when challenged, the patient became agitated and adamant that his skin was infested.

Which of the following is the most likely described disorder?

A.Capgras delusion

B.Cotard delusion

C.Delusional parasitosis

D.Formication

E.Paranoid delusion

Answer:Delusional parasitosis

Explanation:

Patient with a fixed, false belief (delusion) that they are infested by 'bugs' → delusional parasitosis

Important for meLess important

Delusional parasitosis, as suggested by its name, is a delusion (a fixed, false belief) that patients may hold, where they feel that they are infested by parasites or 'bugs'. The above scenario describes this disorder, with the patient taking radical steps to try to kill the apparent infestation. Delusional parasitosis may also be referred to as Ekbom syndrome.

Capgras delusion is not the correct answer. This is a psychiatric disorder in which a person believes that a friend or family member has been replaced by an identical imposter. This can occur in schizophrenia, but also may occur in organic diseases such as brain injury and dementia.

Cotard's delusion is incorrect. This is a fixed false belief that a person may hold where they believe that their body or body part is dead or dying. This can occur with severe depression and psychosis.

Formication is incorrect. Formication is a type of paraesthesia in which it feels like insects are crawling on the skin. Whilst the patient in the scenario may be experiencing a feeling of insects moving on their skin, delusional parasitosis is a better description as he holds a fixed false belief about infestation.

Paranoid delusion is incorrect. This is a fixed false belief in which a person is paranoid about something happening. For example, patients may describe being chased or watched. The above scenario does not describe paranoia, and therefore this is not the best option.

Question:

A 32-year-old woman with a past history of depression presents 3 months postpartum with low mood, anergia and anhedonia for the past 4 weeks. She is exclusively breastfeeding. She has previously been on fluoxetine which suited her well but stopped after becoming pregnant. After a discussion, she would like to restart her medication.

What is the most appropriate anti-depressant to start?

A.Citalopram

B.Duloxetine

C.Fluoxetine

D.Mirtazapine

E.Sertraline

Answer:Sertraline

Explanation:

Sertraline or paroxetine are the SSRIs of choice in breastfeeding women

Important for meLess important

Sertraline (or paroxetine - not an option here) is the most appropriate anti-depressant to commence in breastfeeding women as although present in tiny amounts in breast milk, babies do not develop quantifiable serum sertraline levels and very few adverse events have been reported.

Citalopram and duloxetine are present at higher levels in breast milk and so are less favourable compared with sertraline.

Fluoxetine has a long half-life and is present in breast milk at higher levels so is also less favourable.

Mirtazapine is present in breast milk and should only be used if the benefit outweighs the risk according to the British national formulary.

Question:

You are reviewing a 11-month-old baby with a viral upper respiratory tract infection. She is clinically well but at the end of the consultation her mother asks you about her development. You notice that she points and babbles 'mama' and 'dada' but has no other words. She is shy and cries when you try to examine her. There is an early pincer grip and she can roll from front to back but she cannot yet sit without support. How would you describe her development?

A.Normal development

B.Global developmental delay

C.Isolated delay in gross motor skills

D.Delay in speech + social skills, possibly early autism

E.Isolated delay in fine motor skills

Answer:Isolated delay in gross motor skills

Explanation:

Most babies can sit without support at 7-8 months so this probably represents a delay in gross motor skills. If still present at 12 months she should be considered for referral to a paediatrician. The other development features are normal for her age.

Question:

A 65-year-old man presents with lumps in his groin and is unsure as to when they have emerged. This is the third time they have appeared. He denies any abdominal pain, discomfort, or changes to his bowel habits. He has a past medical history of hypercholesterolaemia and type 2 diabetes mellitus.

His pulse is 86 bpm and his blood pressure is 143/75 mmHg. On examination, bilateral masses are seen superior and medial to the pubic tubercles. They disappear when lying down and do not transilluminate. There is no abdominal tenderness or bruising.

What is the most appropriate next step in his management?

A.Reassure and observe over the next 3 months

B.Reassure and observe over the next 6 months

C.Refer for fitting of a truss

D.Refer for laparoscopic repair with a mesh

E.Refer for open repair with a mesh

Answer:Refer for laparoscopic repair with a mesh

Explanation:

Bilateral and recurrent inguinal hernias are generally repaired laparoscopically using a mesh

Important for meLess important

This patient has signs and symptoms of bilateral inguinal hernias characterised by groin lumps that disappear when lying down. The lumps being superior and medial to the pubic tubercle support this diagnosis. There are no signs of strangulation (such as pain, fever, erythema of the overlying skin etc.) and the patient is asymptomatic. Patients should be offered surgery even if inguinal hernias do not show signs of strangulation to prevent strangulation from occurring in the future, which may have associated complications such as sepsis.

Refer for laparoscopic repair with a mesh is correct. Since this patient has bilateral and recurrent inguinal hernias, the most appropriate step in this patient's management is referring them for a laparoscopic repair using mesh, as this form of surgery has been shown to be efficacious in bilateral and recurrent inguinal hernias.

Reassure and observe over the next 3 months and Reassure and observe over the next 6 months are incorrect. Although monitoring should be continued throughout, regardless of whether surgery is indicated or not, this patient has no contraindications to surgery mentioned in his history, and it is recommended that patients who are medically fit should be treated even if asymptomatic. This is because although the likelihood of strangulation is lower in inguinal hernias compared to other types, strangulation itself can lead to potentially severe complications such as peritonitis, bowel obstruction, and bowel ischaemia.

Refer for fitting of a truss is incorrect. This is offered to patients with unilateral inguinal hernias who are not fit for surgery. The patient in this scenario has no contraindications to surgery and it is recommended that patients who are medically fit should be treated due to the risk of strangulation and its associated potentially severe complications such as peritonitis, bowel obstruction, and bowel ischaemia.

Refer for open repair with a mesh is incorrect. This would be appropriate if this patient had a unilateral inguinal hernia as this has a lower recurrence rate. Recurrence rates are higher in patients who have undergone laparoscopic repair. However, since this patient has bilateral inguinal hernias, laparoscopic repair is preferred as an open approach would lead to more openings being made and an increased risk of larger scars, infection, and bleeding.

Question:

You are an F2 doctor on your GP rotation. One morning you find your 6-year-old daughter has developed golden crusted scabs around her lips. You are sure this is impetigo and feels this needs treating with topical fusidic acid. You are on annual leave and have travelled to the other side of the country to see family, so cannot visit your registered GP surgery. What is the most appropriate action?

A.Prescribe the fusidic acid, saving a GP appointment and NHS money

B.Wait until you return home and make an appointment with the GP

C.Go to a local GP as a temporary resident

D.Ask one of your friends who is a GP trainee to prescribe the fusidic acid

E.Use some of the fusidic acid cream that your friends have left over from when their own children had impetigo

Answer:Go to a local GP as a temporary resident

Explanation:

Option 3 is correct. In line with Good Medical Practice, you should avoid prescribing for yourself or someone close to you where possible therefore options 1 and 4 and incorrect. Option 2 could also be appropriate but it would be preferable to go to a GP sooner rather than later and people often register as temporary patients whilst on holiday around the country. Option 5 is not better than 3 as you should only take medications which are prescribed for you.

GMC Good Medical Practice (2013)

http://www.gmc-uk.org/guidance/goodmedicalpractice.asp

Question:

A four-year-old girl presents with a two-day history of right ear pain. She is systemically well with no fevers and a normal fluid intake. Her mum has been using paracetamol when needed for pain relief. On examination her left tympanic membrane is normal but her right tympanic membrane is erythematous, inflamed and bulging. She has a temperature of 36.5ºC. There is no past medical history of note, but she is allergic to penicillin.

Given the likely diagnosis, what is the most appropriate treatment option?

A.Supportive treatment with paracetamol/ibuprofen

B.Nasal decongestants

C.Clarithromycin

D.Amoxicillin

E.Cetirizine

Answer:Supportive treatment with paracetamol/ibuprofen

Explanation:

The presence of a middle ear effusion is required to make a diagnosis of otitis media

Important for meLess important

This child has unilateral otitis media. Her examination findings are in keeping with a middle ear effusion; however, she is systemically well.

NICE does not recommend decongestants or antihistamines for the treatment of acute otitis media.

First-line antibiotic treatment for otitis media is amoxicillin or clarithromycin/erythromycin in a penicillin-allergic patient. NICE recommends prescribing antibiotics only if there is otorrhoea or bilateral otitis media in a child under the age of 2. Therefore, in this case, antibiotics are not indicated.

The correct answer is to manage her symptoms with supportive treatment. Symptoms can last up to one week.

Question:

Which one of the following statements regarding male circumcision is correct?

A.Circumcision should always be performed under a general anaesthetic

B.It is available on the NHS in areas with a high Jewish or Islamic population

C.Increases the risk of penile cancer

D.Reduces the rate of HIV transmission

E.All infants with hypospadias should be circumcised before the age of 1 year

Answer:Reduces the rate of HIV transmission

Explanation:

Question:

A 34-year-old man from Eswatini presents to the emergency department with a 3-day history of fever, shortness of breath and a dry cough. His past medical history includes tuberculosis and HIV and his most recent CD4 count is 150.

On examination: heart rate 100/min, blood pressure 110/80mmHg, respiratory rate 28/min, oxygen saturation 98% on air at rest, dropping to 80% on walking. His temperature is 38.5ºC. On auscultation, his chest is clear.

How would you treat this man?

A.IV cefotaxime

B.Oral ciprofloxacin

C.IV tazocin

D.Oral rifampicin, isoniazid, pyrazinamide and ethambutol

E.Oral co-trimoxazole

Answer:Oral co-trimoxazole

Explanation:

Pneumocystis jiroveci penumonia is treated with co-trimoxazole, which is a mix of trimethoprim and sulfamethoxazole

Important for meLess important

This man has pneumocystis jirovecii pneumonia (PCP) which occurs in HIV positive patients with a low CD4 count. It classically presents with a fever, dyspnoea, dry cough, exercise-induced desaturation and very few chest signs. It is treated with oral co-trimoxazole or IV pentamidine in severe cases.

Question:

A 17-year-old female was admitted with a fever and an acute wide-spread rash. She has a background of atopic eczema affecting her extensor surfaces and face. On examination, she has monomorphous erythematous vesicles with some lesions having eroded and crusted, on her face, extensor surfaces, as well as palms and soles, and oral ulcers. A viral swab was sent for herpes simplex (HSV-1 and HSV-2) and varicella-zoster viruses were negative. She has developed new lesions despite treatment with acyclovir.

What is the likely viral cause of this patient's rash?

A.Coxsackie virus

B.Cytomegalovirus

C.Epstein-Barr Virus

D.Human Herpesvirus-6

E.Human Herpesvirus-8

Answer:Coxsackie virus

Explanation:

Eczema herpeticum is a primary infection of the skin caused by herpes simplex virus (HSV) and uncommonly coxsackievirus

Important for meLess important

Coxsackie virus can cause 'eczema coxsackium', which is a key differential for eczema herpeticum. It is usually a self-limiting infection that does not respond to treatment with acyclovir.

Cytomegalovirus is a member of the Herpesviridae family (HHV-5) and rarely causes cutaneous symptoms, but when it does it is usually localised.

Epstein-Barr virus is a member of the Herpesviridae family (HHV-4) and often causes a morbilliform rash following administration of a penicillin antibiotic.

Human Herpesvirus-6 usually causes a mild disease in childhood frequently presenting as roseola. Primary infection in young adults is exceedingly rare, and do not feature a significant rash.

Human Herpesvirus-8 is the cause of Kaposi's sarcoma in the immunocompromised host, and possibly Castleman's disease in the immunocompetent adult. Primary infection in adults features mild symptoms and only a localised rash. In children, the primary infection may cause a fever and maculopapular rash.

Question:

A 35-year-old female presents to her GP complaining of persistent oral ulcers that have been present for 1 month. She also comments that over the past 2 weeks she has noticed her hands have become quite swollen and painful. On examination the GP notices the presence of a malar rash on the patient's face. The GP arranges some blood tests to identify the underlying condition.

What antibody test is most sensitive for the underlying condition?

A.ANA

B.Anti-CCP

C.Anti-Ro

D.Anti-Smith

E.Rheumatoid factor

Answer:ANA

Explanation:

Over 99% of patients with SLE are ANA positive, therefore it is a useful rule out test

Important for meLess important

ANA is the most sensitive antibody test to detect SLE, with 99% of SLE patients being ANA positive. Therefore this is the correct answer.

Anti-Smith antibodies are highly specific for SLE, however they are less sensitive than ANA.

Anti-Ro antibodies may be positive in SLE, but only in 20-30% of cases. Therefore anti-Ro is also less sensitive than ANA.

Rheumatoid factor is positive in 20% of SLE patients and so is less sensitive than ANA.

Anti-CCP antibody is a specific antibody for rheumatoid arthritis and is less sensitive than ANA for SLE. Therefore anti-CCP is also incorrect.

Question:

A woman with longstanding ulcerative colitis known to extend to the ascending colon (extending past the left side of the colon) presents to her GP during an acute flare. She has had 4 motions a day, mild bleeding and mildly raised temperature of 37.4ºC. It is thus classed as a mild to moderate flare according to Truelove and Witt's criteria.

She has been prescribed daily rectal aminosalicylates by the GP but symptoms remain.

What is the most appropriate addition to current therapy?

A.Admit for IV ciclosporin

B.Admit for IV hydrocortisone

C.Oral aminosalicylate

D.Oral azathioprine

E.Oral paracetamol

Answer:Oral aminosalicylate

Explanation:

In a mild-moderate flare of ulcerative colitis extending past the left-sided colon, oral aminosalicylates should be added to rectal aminosalicylates, as enemas only reach so far

Important for meLess important

Although steroids are recommended for acute moderate to severe flares of ulcerative colitis, oral aminosalicylates should be added first. If her UC extends to the right, it is unlikely the rectal aminosalicylates (given as enemas) would extend that far.

IV ciclosporin is recommended as inpatient treatment for those who cannot tolerate or have contraindications to corticosteroids.

Azathioprine is recommended for maintenance of remission, not induction during an acute flare.

Question:

A 43-year-old woman with a history of rheumatoid arthritis presents to her GP complaining of a 1-week history of increased pain and stiffness in her wrists and fatigue. On examination, there is minor bilateral tenderness and swelling of the wrists. She has been treated with sulfasalazine for the last 5 years, with no problems.

What is the most appropriate management?

A.Etanercept SC

B.Infliximab IV

C.Leflunomide PO

D.Methylprednisolone IM

E.Paracetamol PO

Answer:Methylprednisolone IM

Explanation:

Intramuscular steroids such as methylprednisolone are used to manage the acute flares of rheumatoid arthritis

Important for meLess important

This presentation of bilateral swelling and tenderness in the wrists is a typical presentation of an acute flare of rheumatoid arthritis.

NICE recommends the treatment of an acute flare of rheumatoid arthritis with an oral or intramuscular steroid. Therefore, methylprednisolone IM is the most appropriate answer. Corticosteroids, such as methylprednisolone, have a primarily glucocorticoid effect and result in inhibition of proinflammatory cytokine production. They are used for the short term relief of improve symptoms of pain and discomfort through rapid reduction of inflammation.

In this situation, the dose of sulfasalazine may be increased or changed to another DMARD and whilst this happens, steroids can also be used as a bridging treatment to control inflammation whilst the Disease Modifying Anti-Rheumatic Drugs (DMARD) takes effect.

Treatment with leflunomide would be indicated if sulfasalazine was not managing the rheumatoid arthritis adequately.

TNF inhibitors (etanercept or infliximab) are indicated after an inadequate response to at least 2 DMARDs, including methotrexate.

Paracetamol would be useful for baseline pain management in this patient. However, in order to treat this flare of rheumatoid arthritis, steroids would be required to reduce the inflammation. Although this will form a part of her management, it is not the most appropriate management.

Question:

A 5-month-old baby is admitted with poor feeding. Over the last 24 hours, they have fed 25% of their usual amount and have had significantly fewer wet nappies than usual. The baby has been particularly irritable over this time and is not settling. There is no past medical history, no known allergies, and there has been no travel outside of the UK.

On examination, the baby appears unsettled and grouchy. There are no rashes on exposure and the fontanelles appear normal. The physical observations reveal tachycardia and a fever of 39ºC. When you attempt to manually flex the baby's neck you note that they also flex the hips and knees.

Which of the following is the most appropriate empirical intravenous treatment?

A.Amoxicillin

B.Ampicillin

C.Ceftriaxone

D.Cefotaxime + amoxicillin

E.Vancomycin + cefotaxime

Answer:Ceftriaxone

Explanation:

Initial empirical therapy for meningitis if > 3 months of age: IV 3rd generation cephalosporin

Important for meLess important

An infant with poor feeding, irritability, fever, and poor urine output should always be initially treated for meningitis until further investigations prove otherwise. It is also important to note that the common signs of high-pitched cry, bulging fontanelles, and petechial rash are often not seen in young infants. In this scenario, a 5-month-old infant does have neck stiffness associated with a positive Brudzinski's sign, which is severe neck stiffness that causes a patient's hips and knees to flex when the neck is flexed.

The most recently NICE guidelines state that you should treat children and young people aged 3 months or older with suspected bacterial meningitis without delay using intravenous ceftriaxone.

In those younger than 3 months with suspected bacterial meningitis, you should treat without delay using intravenous cefotaxime plus either amoxicillin or ampicillin. The addition of amoxicillin or ampicillin is to cover for Listeria monocytogenes infection.

Amoxicillin or ampicillin, however, should never be used independently for empirical therapy. This is because Haemophilus influenzae type B is a common cause of meningitis in this age group and is often known to produce beta-lactamase, thus making penicillin-based antibiotics ineffective.

The addition of vancomycin to the 3rd generation cephalosporin is indicated when there has been recent travel outside of the UK.

Question:

You are reviewing a 22-year-old man who has developed headaches. Which one of the following features is most typical of migraines?

A.Pain on neck flexion

B.Phonophobia

C.Epiphora

D.Recent viral illness

E.Bilateral, 'tight-band' like pain

Answer:Phonophobia

Explanation:

Phonophobia occurs in around three-quarters of patients.

Question:

A 56-year-old man presents with a 3 weeks-history of productive cough, dyspnoea, and pleuritic chest pain. He has had associated lethargy, weight loss, a swinging fever and night sweats. He had a stroke last year.

Sputum and blood cultures are collected. After a chest x-ray revealed a fluid-filled space within an area of consolidation in his right lung, he was given IV antibiotics.

He has not shown any signs of responding to the IV antibiotics. Instead, the patient's status appears to be worsening.

What is the most appropriate next step in his management?

A.Arrange CT-guided percutaneous drainage

B.Arrange bronchoscopy

C.Arrange sputum cytology

D.Prescribe broad-spectrum IV antibiotics

E.Prescribe rifampicin, isoniazid, pyrazinamide, and ethambutol

Answer:Arrange CT-guided percutaneous drainage

Explanation:

Percutaneous drainage should be considered if a lung abscess is not improving with intravenous antibiotics

Important for meLess important

Arrange CT-guided percutaneous drainage is correct. This patient has signs and symptoms consistent with a lung abscess, characterised by swinging fevers, night sweats, pleuritic chest pain, dyspnoea, and cough. Their chest x-ray demonstrating a fluid-filled space within an area of consolidation supports this diagnosis. For patients who do not improve with IV antibiotics, percutaneous drainage should be considered, which can either be guided by a CT scan or by ultrasound. One reason why some patients do not respond to IV antibiotics is that the antibiotics themselves may not be able to penetrate the wall of the abscess.

Arrange bronchoscopy is incorrect. This is not commonly used in lung abscesses. They are indicated if an underlying tumour or foreign body is suspected and should be performed for diagnosis only, not drainage.

Arrange sputum cytology is incorrect. Sputum cultures have already been collected and a diagnosis of lung abscess has been established. This could be considered later if the patient still does not respond to treatment to rule out an underlying malignancy.

Prescribe broad-spectrum IV antibiotics is incorrect. Given that this patient has already had IV antibiotics without success, it is unlikely that this option will be effective. The next step would be to manually drain the abscess.

Prescribe rifampicin, isoniazid, pyrazinamide, and ethambutol is incorrect. The patient's signs and symptoms are suggestive of a lung abscess and have not responded to IV antibiotics. It would be unlikely for the patient to have reached this point without a diagnosis of tuberculosis and being given its treatment. Given that he has already trialled antibiotics without success, the next step would be to manually drain the abscess.

Question:

A 27-year-old female presents to the emergency department with right lower quadrant abdominal pain and vaginal bleeding. The pain radiates to her right shoulder, is exacerbated by movement, and has no alleviating factors. She has no associated gastrointestinal symptoms. Her last menstrual period was 7 weeks ago. A urine pregnancy test is positive.

Which of the following is a risk factor for this presentation?

A.Combined oral contraceptive pill (COCP) use

B.Emergency hormonal contraception use ('morning-after pill')

C.Endometriosis

D.Multiparity

E.Nulliparity

Answer:Endometriosis

Explanation:

Endometriosis is a risk factor for ectopic pregnancy

Important for meLess important

The lower abdominal pain that refers to her shoulder, the vaginal bleeding, the lack of gastrointestinal symptoms and the positive pregnancy test all indicate that this woman has an ectopic pregnancy. Implantation of a fertilised ovum outside the uterus results in an ectopic pregnancy. Endometriosis is a risk factor for ectopic pregnancy. This is because endometriosis can result in the formation of scar tissue and adhesions which may prevent zygotes from reaching the uterus.

Combined oral contraceptive pill use does not increase the risk of ectopic pregnancy. NICE guidance states that the rates of ectopic pregnancies in women using the combined oral contraceptive pill are similar to those in the general population.

Emergency hormonal contraception use does not increase the risk of ectopic pregnancy. NICE guidance states that the rates of ectopic pregnancies in women using emergency hormonal contraception are similar to those in the general population.

Multiparity is not associated with an increased risk of ectopic pregnancy. Previous ectopics, however, are.

Nulliparity is not associated with an increased risk of ectopic pregnancy. It is, however, a risk factor for multiple malignancies, including breast, endometrial and ovarian cancer.

Question:

A 29-year-old man has his renal function checked. The eGFR is calculated to be 54 ml/min. Which one of the following factors is most likely to explain this unexpectedly low result?

A.Drinking a large amount of milk

B.Being dehydrated when the blood sample was taken

C.Being very tall

D.Excessive alcohol intake

E.Large muscle mass secondary to body building

Answer:Large muscle mass secondary to body building

Explanation:

The eGFR is often inaccurate in people with extremes of muscle mass. Body builders often have an inappropriately low eGFR.

Question:

A 9-year-old boy presents to an urgent care centre following a fall onto his outstretched hand off of his bike. On examination, his wrist is swollen and tender with a good range of movement and no obvious deformity.

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What is the correct description of the findings on this radiograph?

A.Normal appearance of growth plate

B.Salter–Harris I fracture

C.Salter–Harris II fracture

D.Salter–Harris III fracture

E.Salter–Harris IV fracture

Answer:Salter–Harris I fracture

Explanation:

While by far the most common is type II (75% of Salter-Harris fractures), this is a Salter–Harris type I fracture of the distal radius. This is where the fracture passes through the growth plate without affecting any bony cortex. The classification can be easily remembered using the acronym 'SALTR':

I: Slipped (either side of the growth plate slipping past each other)

II: Above growth plate

III: Lower than growth plate

IV: Through (fracture through both above and below the growth plate)

V: Rammed (a crush injury)

This can be differentiated from normal appearance of growth plate due to the clear posterior displacement of the distal part of the bone. Even in paediatric radiographs, the external surface of the bone should preserve a smooth line without any steps or jumps.

Salter–Harris II fractures are very common, but there is no visible fracture 'above' (or proximal to) the growth plate.

Salter–Harris III fractures would, similar to type II, be seen as a fracture through the bony cortex 'below' the growth plate

Salter–Harris IV fractures would be seen as a fracture travelling 'through' the bony cortex both proximal and distal to the growth plate.

Question:

A 72-year-old man presents with his daughter. She reports that he seems to have been struggling intermittently with his attention, and sometimes his speech is muddled. She says he has been very low in mood and does not seem to enjoy anything anymore, saying he doesn't have any energy. He has also been experiencing visual hallucinations and at night he 'acts out' his dreams. His gait appears slow and shuffling. Given a likely diagnosis of Dementia with Lewy bodies, which of the following medications should be avoided in this patient?

A.Donepezil

B.Haloperidol

C.Carbidopa/Levodopa

D.Clonazepam

E.Sertraline

Answer:Haloperidol

Explanation:

Avoid neuroleptics in Lewy body dementia- may cause irreversible parkinsonism

Important for meLess important

All of the treatments above are to treat symptoms of Lewy body dementia with the exception of Haloperidol.

Antipsychotics should be avoided in patients with dementia due to adverse reactions and increased mortality in the elderly. In Lewy body dementia, severe antipsychotic sensitivity reactions have been reported in 50% of patients- these include rigidity, immobility, postural falls, and confusion. They may lead to irreversible parkinsonism, particularly risperidone and typical antipsychotics such as Haloperidol. Hence nonpharmacological options should always be tried first. If antipsychotics are unavoidable, atypical antipsychotics should be used in very low doses instigated by a specialist.

Donepezil is a cholinesterase inhibitor which is the first-line treatment for cognitive impairment and behavioural symptoms in DLB.

Carbidopa/Levodopa are dopaminergic agents used to treat motor symptoms which present in Lewy body dementia

Clonazepam is used to treat REM sleep behaviour disturbances and should be given in low doses 30 minutes before bedtime.

Sertraline is an SSRI which are the preferred drugs to treat depression with Lewy body dementia because they have limited side-effects and favourable pharmacokinetics

Question:

A 3-year-old child presents to the general practitioner accompanied by his mother. He has been suffering from a high fever in the past 24 hours, accompanied by a throat ache.

On examination, the child looks feverish but comfortable. You can notice a rash on both his arms which is more intense in the cubital fossas. The lesions are erythematous and rough in texture. The throat looks red and the tongue appears crimson red in colour too.

The child was previously healthy with no past medical history.

What is the correct management for this patient?

A.Administer varicella-zoster immunoglobulin

B.Prescribe analgesia and ask to come back in 5 days for review

C.Prescribe oral azithromycin for 5 days

D.Prescribe oral co-amoxiclav for 10 days

E.Prescribe oral penicillin V for 10 days

Answer:Prescribe oral penicillin V for 10 days

Explanation:

Treat scarlet fever in patients who are well and do not require admission (who have no penicillin allergy) with 10 days of oral penicillin V

Important for meLess important

The correct answer is prescribe oral penicillin V for 10 days. The child is presenting with the classical features of scarlet fever: elevated temperature lasting 24/48 hours, throat ache, strawberry tongue (described as crimson in colour) and a rash which is more intense on the cubital fossas.

This condition is caused by a reaction to erythrogenic toxins produced by Group A haemolytic streptococci. If the child is well enough to not require admission, then a 10 days course of oral penicillin V should be prescribed as treatment. Safety netting advice should always be given as this condition can cause various complications ranging from otitis media to rheumatic fever.

Administer varicella-zoster immunoglobulin in an incorrect option. These should be administered to immunocompromised patients and newborns with peripartum exposure to chickenpox. This condition would present with an itchy rash which is initially macular then becomes papular then vesicular.

Prescribe analgesia and ask to come back in 5 days for review is incorrect. In suspected cases of scarlet fever such as this one, antibiotics should be prescribed as soon as possible to avoid important complications.

Prescribe oral azithromycin for 5 days is an incorrect option. Azithromycin is the antibiotic of choice for those patients suffering from scarlet fever who are allergic to penicillin. This patient has no recorded allergies, and additionally, the course should last ten days rather than five.

Prescribe oral co-amoxiclav for 10 days is incorrect. This is the treatment of choice for pneumonia associated with influenza in children. The patient has no history of cough, making the diagnosis unlikely.

Question:

You review a 69-year-old man who has a 20-year history of type 2 diabetes mellitus. This is currently managed with metformin and gliclazide. There is no other past medical history of note except depression. During his annual diabetic review you notice that whilst his foot pulses are easy to palpate there is a loss of sensation in 4 of the 10 points tested on the right foot and 2 of the 10 points tested on the left foot. What is the most appropriate management?

A.Refer to the local vascular team - to be seen within 2 weeks

B.Increase the frequency of diabetic foot reviews from every 12 months to every 6 months

C.Refer to the local diabetic foot centre

D.Consider a trial of pregabalin

E.Add clopidogrel and atorvastatin to his treatment

Answer:Refer to the local diabetic foot centre

Explanation:

Diabetic patients who have any foot problems other than simple calluses should be followed up regularly by the local diabetic foot centre

Important for meLess important

Question:

A 20-year-old man with sickle cell disease has a 3-day history of chest pain, fever, cough, and shortness of breath. His temperature is 39ºC, heart rate is 115/min, respiratory rate is 23/min, blood pressure is 110/74 mmHg, and oxygen saturations are 95% on 4L nasal cannulae.

His blood tests are as follows:

Hb 65 g/L Male: (135-180)

Female: (115 - 160)

Platelets 120 \* 109/L (150 - 400)

WBC 3.0 \* 109/L (4.0 - 11.0)

Reticulocytes 3 % (0.5 - 1.5)

A chest x-ray shows bilateral pulmonary infiltrates.

What is the next step in his management?

A.Analgesia, antibiotics, and blood transfusion

B.Furosemide and blood transfusion

C.Hydroxyurea and blood transfusion

D.IV corticosteroids

E.Splenectomy

Answer:Analgesia, antibiotics, and blood transfusion

Explanation:

The management of acute chest syndrome in sickle cell disease includes:

pain relief

oxygen therapy

antibiotics

transfusion

Important for meLess important

Analgesia and antibiotics are correct. In acute chest syndrome, the mainstay of management is pain relief, oxygen (which he has already been given), antibiotics, and consideration of transfusion.

Furosemide and blood transfusion is incorrect. The patient has acute chest syndrome. Furosemide plays no role in the management of acute chest syndrome.

Hydroxyurea and blood transfusion is incorrect. This is not used in acute chest syndrome but is used in the ongoing management of sickle cell anaemia once the acute episode has been managed. It can be used as prophylaxis to prevent further painful episodes.

IV corticosteroids is incorrect. The patient has acute chest syndrome. Corticosteroids play no role in the management of acute chest syndrome.

Splenectomy is incorrect. Although a sequestration crisis can occur in the spleen and can also cause an increased reticulocyte count, the presence of infiltrates on the chest x-ray and the patient's symptoms are more indicative of acute chest syndrome.

Question:

A couple attends a paediatric clinic with their newborn daughter with Turner's syndrome. They want to know a bit more about the long-term management of their daughter's condition. Which of the following medications may be given to her during her childhood as a result of her condition?

A.Insulin

B.Testosterone replacement therapy

C.Growth hormone therapy

D.Vasopressin

E.Adrenocorticotropic hormone (ACTH) replacement therapy

Answer:Growth hormone therapy

Explanation:

Growth hormone is recommended in the treatment of Turner's syndrome

Important for meLess important

This question is asking about the management of Turner's syndrome. Children with Turners syndrome often have a short stature that requires treatment with growth hormone therapy from a young age.

Insulin is unlikely to be required, in fact, diabetes mellitus seems to be rare in patients with Turner's syndrome

Testosterone replacement therapy is not used in the management of Turner's syndrome, however, oestrogen is initiated before adolescence for pubertal development and to help prevent osteoporosis.

Vasopressin is a replacement for antidiuretic hormone and has no role in the treatment of Turner's syndrome.

Adrenocorticotropic hormone (ACTH) replacement therapy is not used in the treatment of Turner's syndrome.

Question:

A 25-year-old man presents to the acute medical unit with haematemesis. He states that he had a flu-like illness with fever and rigors approximately 2 days ago. He returned from Brazil 7 days ago.

Blood results are as follows:

Hb 140 g/L Male: (135-180)

Female: (115 - 160)

Platelets 620 \* 109/L (150 - 400)

WBC 14.8 \* 109/L (4.0 - 11.0)

Na+ 135 mmol/L (135 - 145)

K+ 4.2 mmol/L (3.5 - 5.0)

Urea 16.9 mmol/L (2.0 - 7.0)

Creatinine 74 µmol/L (55 - 120)

CRP 44 mg/L (< 5)

Bilirubin 48 µmol/L (3 - 17)

ALP 140 u/L (30 - 100)

ALT 688 u/L (3 - 40)

γGT 210 u/L (8 - 60)

Albumin 34 g/L (35 - 50)

Thick and thin blood films Unremarkable

Leptospirosis PCR and antibody testing Negative

What is the most likely diagnosis?

A.Chikungunya

B.Dengue fever

C.Leptospirosis

D.Malaria

E.Yellow fever

Answer:Yellow fever

Explanation:

Yellow fever typically presents with flu like illness → brief remission→ followed by jaundice and haematemesis

Important for meLess important

Yellow fever is correct. This is a classic case of yellow fever which typically presents as a flu-like illness, which is sometimes followed by hepatitis and haematemesis. The travel history to Brazil adds further weight to this diagnosis.

Chikungunya is incorrect. The disease is most often characterised by acute onset of fever and polyarthralgia. The absence of arthralgia and the presence of haemorrhagic symptoms makes this an unlikely diagnosis.

Dengue fever is incorrect. Dengue causes a wide spectrum of diseases. This can range from subclinical disease to severe flu-like symptoms in those infected. Although less common, some people develop severe dengue, which can be any number of complications associated with severe bleeding, organ impairment and/or plasma leakage. Severe dengue remains within the differential diagnosis, however, the evolution of symptoms and the presence of hepatitis favours the diagnosis of yellow fever (hepatitis is rare in dengue).

Leptospirosis is incorrect. This disease follows the same two-phase course as yellow fever, and both stages can have identical symptoms so the only diagnostic tools are blood tests. In this case, both PCR and antibody levels are negative making it a less likely diagnosis.

Malaria is incorrect. Malaria is another important mimic of yellow fever which needs to be excluded. It can also present with a non-specific flu-like illness, hepatitis, and coagulopathy. The thick and thin blood films, in this case, are negative making this a less likely diagnosis.

Question:

A 74-year-old male is in recovery following carotid endarterectomy for an 80% stenosis of the carotid artery. Following an uneventful period in recovery the registrar assessed this gentleman's cranial nerves. When asked to poke his tongue out there is deviation to the right toward the right side of the patient. What nerve has been affected?

A.Vagus

B.Right hypoglossal

C.Accessory

D.Left hypoglossal

E.Facial

Answer:Right hypoglossal

Explanation:

Carotid endarterectomy is a procedure that is at high risk of disrupting the ipsilateral hypoglossal nerve. The hypoglossal nerve supplies ipsilateral motor component to the tongue and the hyoid depressors.

The accessory nerve supplies the sternocleidomastoid and trapezius muscle.

Question:

You have a telephone consultation with a 26-year-old female who wants to start trying to conceive. She has a history of epilepsy and takes levetiracetam 250mg twice daily.

Which of the following would be most important to advise?

A.A referral to a specialist is required and she can start trying to conceive immediately

B.Due to her medication, she is less likely to have a normal pregnancy and healthy baby

C.Take folic acid 5mg once daily from a positive pregnancy test until 12 weeks of pregnancy

D.Take folic acid 5 mg once daily from before conception until 12 weeks of pregnancy

E.Take folic acid 400 mcg once daily from before conception until 12 weeks of pregnancy

Answer:Take folic acid 5 mg once daily from before conception until 12 weeks of pregnancy

Explanation:

Women on antiepileptics, who try to conceive, should receive folic acid 5mg instead of 400mcg OD

Important for meLess important

Folic acid 5mg once daily from before conception until 12 weeks is the correct answer. Women on antiepileptics should be prescribed high-dose folic acid prior to conception and throughout the first trimester in order to reduce the risk of neural tube defects (NTD).

A referral to a specialist is required and she can start trying to conceive immediately is incorrect. She should be referred to specialist care but as per the National Institute of Health and Care Excellence (NICE) guidance, she should continue to use effective contraception until she has a full assessment by the specialist.

Due to her medication, she is less likely to have a normal pregnancy and healthy baby is incorrect. Current NICE guidance is to reassure all women, even those on anti-epileptics, that they are likely to have a normal pregnancy and healthy baby.

Take folic acid 5mg once daily from a positive pregnancy test until 12 weeks of pregnancy is incorrect. Women should not be advised to wait until a positive pregnancy test to start taking folic acid if they are trying to conceive. If it is an unplanned pregnancy, folic acid should be started as soon as possible. For this reason, it should be started when the patient begins trying to conceive.

Take folic acid 400 mcg once daily from before conception until 12 weeks of pregnancy is incorrect. The lower dose is incorrect for a woman taking anti-epileptics, women on these medications are at higher risk for NTD and require the higher dose. This would be correct for a woman not on anti-epileptics or with a normal risk of conceiving a child with a NTD.

The following are at increased risk of conceiving a child with a NTD and therefore should receive the higher dose folic acid:

Either parent has a NTD

Previous pregnancy affected by NTD

Family history of NTD

Woman taking anti-epileptic medication

Woman with diabetes

Obese (BMI > 30mg/kg2)

Sickle cell disease (take 5mg folic acid OD throughout pregnancy)

Thalassaemia trait or thalassaemia (take 5mg folic acid OD throughout pregnancy)

Question:

A 36-year-old lady presents to her GP with anxiety. She has been experiencing excess sweating, palpitations and diarrhoea.

Which of the following features would point towards a diagnosis of Grave's disease over another cause of hyperthyroidism?

A.Nail pitting

B.Hair thinning

C.Onycholysis

D.Koilonychia

E.Acropachy

Answer:Acropachy

Explanation:

If there is clubbing with hyperthyroidism, think Graves' disease

Important for meLess important

This question is asking about a woman presenting with classic signs and symptoms of hyperthyroidism. The question asks about the features above that will point to Grave's disease as a diagnosis, therefore the correct answer is acropachy or thyroid acropachy as it is also referred. This can easily be mistaken for clubbing of the nails as it looks very similar, and is due to autoimmune reactions of the thyroid antibodies causing soft tissue swelling under the nail bed.

Onycholysis can occur in hyperthyroidism, however, it is not specific to Grave's disease and thus does not help differentiate the cause.

Nail pitting is associated with psoriasis and not hyperthyroidism

Koilonychia is associated with iron-deficiency anaemia and not hyperthyroidism

Hair thinning is a sign of all forms of hyperthyroidism and so would not point to Grave's disease over another cause.

Question:

A 56-year-old gentleman presents with lower limb stiffness and imbalance. His only past medical history of note is carpal tunnel syndrome that was diagnosed a year ago on clinical grounds and has been refractory to treatment with splints and steroid injections. Which of the following is most likely?

A.Cauda equina syndrome

B.Subacute combined degeneration of the cord

C.Degenerative cervical myelopathy

D.Parkinsons disease

E.Multiple sclerosis

Answer:Degenerative cervical myelopathy

Explanation:

The presentation of degenerative cervical myelopathy [DCM] is variable. Early symptoms are often subtle and can vary in severity day to day, making the disease difficult to detect initially. However as a progressive condition, worsening, deteriorating or new symptoms should be a warning sign.

Other answers:

Cauda equina syndrome results from compression of the cauda equina and classically includes leg weakness, saddle anaesthesia and sphincter disturbance. It is usually an acute syndrome with progressive signs. It does not cause leg stiffness.

Subacute combined degeneration of the cord results from long-standing vitamin B12 deficiency, classically presenting as a posterior cord syndrome with impaired proprioception. It can feature both upper and lower motor neuron signs. B12 deficiency can be associated with several neurological features. These include a myelopathy (classically the subacute combined degeneration of the cord), neuropathy and paraesthesias without neurological signs [3]. Subacute combined degeneration is extremely rare in developed countries, though in tropical countries it is frequently the commonest cause of non-traumatic myelopathy [4].

Idiopathic Parkinsons disease is a tetrad of Tremor, Rigidity, Akinesia and Postural Instability (this can be remembered using the TRAP mneumonic). In the early stages pain is not a typical feature and it does not cause numbness.

Multiple Sclerosis [MS] can have a variable presentation, with both sensory and motor symptoms and signs. Inflammatory changes are often present at multiple sites, which can cause symptoms at more than one site; a dissociated sensory loss, that is numbness at different and unlinked sites, is a hallmark of MS. Often patients will recall previous episodes of odd neurological deficits, which resolved. MS predominantly affects woman (3-4 times common) and usually presents before the age of 45.

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Question:

A 50-year-old woman presents with blurred vision and headaches emerging over the last 5 days. On examination, her left eye deviates inferiorly and laterally, and there is ptosis and painful eye movement. Her left pupil is large compared to the right and is unresponsive to light. The indirect pupil response is impaired. Her right eye is unaffected and normal upon testing. There is no eye redness or discharge, and she does not wear contact lenses. She has a medical history of type 2 diabetes and takes metformin, dapagliflozin, and gliclazide.

Where is the most likely location of the lesion?

A.Cervical sympathetic chain

B.Medulla

C.Optic nerve

D.Posterior communicating artery

E.Subarachnoid space

Answer:Posterior communicating artery

Explanation:

Painful third nerve palsy = posterior communicating artery aneurysm

Important for meLess important

Posterior communicating artery is correct. This patient has signs and symptoms of third nerve palsy, characterised by her left eye ptosis, and inferior and lateral deviation ('down and out'). This can be due to various causes, however, a painful third nerve palsy should ring alarm bells for a posterior communicating artery aneurysm. The parasympathetic fibers of the oculomotor nerve lie on the nerve's surface, which is responsible for pupillary constriction. The presence of her pupil dilation suggests that the parasympathetic function of this nerve is impaired as it cannot constrict the pupil, meaning a 'surgical' third nerve palsy (external structures are compressing on the nerve) is most likely. The most common cause of surgical third nerve palsy that is associated with a headache and pupil dilation is a posterior communicating artery aneurysm. Strokes and other 'medical' causes do not tend to affect the parasympathetic function of the oculomotor nerve, which means there would be no pupil dilation.

Cervical sympathetic chain is incorrect. This would not lead to a third nerve palsy, and would instead cause signs and symptoms consistent with Horner's syndrome (miosis (small pupil), ptosis, anhidrosis, etc.). The patient's pupil is enlarged, suggesting that there is a problem with parasympathetic innervation, leading to a reduced ability to constrict the pupil. In Horner's syndrome, there is impaired sympathetic control of the pupil, meaning it cannot dilate sufficiently, leading to a small pupil. A third nerve palsy with a headache should ring alarm bells for a posterior communicating artery aneurysm, especially if the pupil is dilated.

Medulla is incorrect. The cranial nerves that exit the medulla are the hypoglossal nerve, spinal accessory nerve, vagus nerve, and glossopharyngeal nerve. A problem with these nerves would not lead to signs and symptoms consistent with a third nerve palsy. A third nerve palsy with a headache should ring alarm bells for a posterior communicating artery aneurysm, especially if the pupil is dilated.

Subarachnoid space is incorrect. A cause of this is a subarachnoid haemorrhage, which is classically characterised by a sudden-onset headache and features of meningism (photophobia and neck stiffness). This patient does not have features of meningism, and their onset of symptoms is not as acute. As well as this, a very significant amount of blood would have to pool up to increase the intracranial pressure enough to cause a third nerve palsy which would cause severe pain and symptoms such as coma or even death. A third nerve palsy with a headache should ring alarm bells for a posterior communicating artery aneurysm, especially if the pupil is dilated.

Optic nerve is incorrect. Lesions at the optic nerve would lead to visual disturbances, pain that is worse on eye movement, and a relative afferent pupillary defect. Some patients may notice colour desaturation. The optic nerve does not supply the extraocular muscles, and a lesion at the optic nerve cannot cause inferior and lateral deviation of the eye. As well as this, lesions at the optic nerve can cause a relative afferent pupillary defect (RAPD). This is not the case here as both the direct and indirect pupillary light responses are impaired. This patient has a third nerve palsy as their eye is deviated 'down and out', and it is likely that the cause of the third nerve palsy is a posterior communicating artery aneurysm, due to the presence of a headache and dilated pupil.

Question:

A 34-year-old lady has presented to her GP for review of her medication.

She was diagnosed with bipolar disorder 8 months previously and has been taking olanzapine 10mg once daily and lithium carbonate 600mg twice daily.

She has noticed that her psychological symptoms have improved overall, however she reports feeling more tired in the past month.

She also reports reduced appetite and with bouts of constipation.

Given her presentation, what is the most likely explanation for her symptoms?

A.Hypercalcaemia due to olanzapine toxicity

B.Hypothyroidism due to olanzapine toxicity

C.Hypothyroidism due to lithium toxicity

D.Hypoadrenalism due to lithium toxicity

E.Depressive episode secondary to under-treatment of bipolar disorder

Answer:Hypothyroidism due to lithium toxicity

Explanation:

Hypothyroidism is the most common endocrine disorder developing as a result of chronic lithium toxicity

Important for meLess important

Lithium toxicity leading to hypothyroidism usually manifests between 6 and 18 months after initiation of treatment although the mechanism by which lithium inhibits thyroid hormone release is poorly understood.

Olanzapine has not been reported to cause hypercalcemia or hypothyroidism.

Lithium is not associated with hypoadrenalism.

A depressive episode due to undertreatment of bipolar would be a good differential however in this case, the patient has noticed that her mood has improved as well as the development of new somatic symptoms.

This makes hypothyroidism due to lithium toxicity a more likely diagnosis.

Question:

A 35-year-old woman with a past medical history of Von Willebrand disease presented for a left knee arthroscopy and screw removal under epidural anaesthesia. The L3-L4 epidural space was identified and local anaesthetic infiltrated into the space. In the operating room sensory block to temperature was observed to the T10 dermatome.

The operation was uneventful and the patient was comfortable upon arrival on the ward. The block resolved completely 2 hours after the initial injection and the patient was pain free.

Two hours later the patient complained of excruciating back pain. On examination she displayed power as 3/5 in all muscle groups of the right leg and absent right patella reflex. Sensation to light touch was reduced in the right leg.

What complication of epidural anaesthesia is this likely to demonstrate?

A.Systemic local anaesthetic toxicity

B.Direct spinal cord injury from the procedure

C.Guillain–Barré syndrome

D.Spinal epidural abscess

E.Spinal epidural haematoma

Answer:Spinal epidural haematoma

Explanation:

A complication of epidural anesthesia is a epidural haematoma

Important for meLess important

The correct answer here is a spinal epidural haematoma, blood in the spinal epidural space which impinges on the spinal cord. The exact symptoms depend on the location of the epidural but invariability is a combination of neurological deficit and severe back pain. The fact this patient has a coagulopathy (Von-Willebrand disease) is a risk factor.

Local anaesthetic toxicity occurs due to accidental injection intravascularly and can result initially in an excitation phase of circumoral numbness, restlessness, tinnitus, shivering, muscular twitching and convulsions followed by a depression phase of LOC and apnoea. None of these features are present in this case.

Direct spinal cord injury would usually result in immediate symptoms during the procedure.

Gillian-Barre syndrome is an acute inflammatory demyelinating polyneuropathy usually preceded by infection with sensory symptoms usually preceding motor symptoms.

Spinal epidural abscess is a possibility although symptoms usually develop over a slower time-frame and given the patients coagulopathy a haematoma is the best answer here.

Question:

A 62-year-old woman is admitted to the medical ward with a 3-week history of fevers and lethargy. On examination, you note a few splinter haemorrhages in the finger nails and a loud systolic murmur at the apex. Your consultant instructs you to take 3 sets of blood cultures and to arrange an echocardiogram. Later that day you receive a call from microbiology about the provisional blood culture results.

Which of the following is most likely to have grown?

A.Gram positive cocci

B.Gram positive bacilli

C.Gram negative cocci

D.Gram negative bacilli

E.Fungal hyphae

Answer:Gram positive cocci

Explanation:

The vast majority of cases of bacterial endocarditis are caused by gram positive cocci.

Common causes:

Streptococcus viridans

Staphylococcus aureus (in intravenous drugs uses or prosthetic valves)

Staphylococcus epidermidis (in prosthetic valves)

Rarer causes:

Enterococcus

Streptococcus bovis

Candida

HACEK group

Coxiella burnetii

Acute endocarditis is most commonly caused by Staphylococcus, while subacute cases are most commonly caused by Streptococcus species.

Knowledge of the common underlying organisms is important for directing empirical antibiotic therapy:

Native valve endocarditis (NVE): amoxicillin + gentamicin

NVE with severe sepsis, penicillin allergy or suspected methicillin-resistent staphylococcus aureus (MRSA): vancomycin + gentamicin

NVE with severe sepsis and risk factors gram negative infection: vancomycin + meropenem

Prosthetic valve endocarditis: vancomycin, gentamicin + rifampacin

Once blood culture results are available, antibiotic therapy can be altered to provide specific cover. Treatment usually consists of long courses (4-6 weeks) of intravenous antibiotic therapy.

Question:

A 14-year-old boy is seen in clinic for his homozygous sickle cell disease status. He has managed with his condition well, and has not had any acute crises for the last three years. However, he has been feeling more tired than usual over the last 6 months, and the doctor decides to organise some routine blood tests.

Which of the following combinations of blood results are most likely to be seen in sickle cell patients?

A.Raised haemoglobin; normal MCV; and normal reticulocytes

B.Raised haemoglobin; raised MCV; and raised reticulocytes

C.Normal haemoglobin; raised MCV; and raised reticulocytes

D.Low haemoglobin; normal MCV; and raised reticulocytes

E.Low haemoglobin; reduced MCV; and reduced reticulocytes

Answer:Low haemoglobin; normal MCV; and raised reticulocytes

Explanation:

Sickle cell disease causes a normocytic anaemia with raised reticulocyte count – due to haemolysis

Important for meLess important

Sickle cell disease causes intravascular haemolysis - resulting in a normocytic anaemia. The haemolysis results in a greater drive from the bone marrow to compensate for this loss, causing a rise in reticulocytes (the precursor to mature red blood cells).

Therefore option 4 is the correct answer.

Question:

A 22-year-old man who had distal radial fracture two months ago, presents to GP with numbness in the lateral three and a half digits and wasting of thenar muscles.

What is the most likely diagnosis?

A.Cubital tunnel syndrome

B.Carpal tunnel syndrome

C.Ulnar nerve injury

D.Radial nerve palsy

E.Radial ganglion resulting in numbness

Answer:Carpal tunnel syndrome

Explanation:

Phalen's test is used to asses carpal tunnel syndrome. The patient's wrist is held in maximum flexion (reverse prayer sign) for 30-60 second. The test is positive if there is numbness in the median nerve distribution

Important for meLess important

The scenario is typical of carpal tunnel syndrome. Median nerve innervates thenar muscles and provides sensory innervation to lateral three and a half digits. When Phalen's test is performed, it results in the compression of median nerve and hence the above presentation.

Cubital tunnel syndrome is due to the compression of ulnar nerve and would result in hypothenar muscles wastage and numbness in medial one and a half digits.

Ulnar nerve injury would result in loss of sensation from medial one and a half digit.

Radial nerve palsy would typically present with wrist drop and loss of sensation from 1st dorsal web-space.

Radial ganglion is characterised by mass near the base of thumb usually above wrist.

Question:

A 25-year-old woman presents to the emergency department after opening her bowels five times with blood. Her temperature is 37.1ºC, her heart rate is 95 /min and her blood pressure is 134/80 mmHg, there is left iliac fossa tenderness and her BMI is 34 kg/m².

A sigmoidoscopy shows inflammatory changes limited to the colon and rectum affecting the superficial mucosa and crypt abscesses.

Her condition has been difficult to control and she takes azathioprine and the combined oral contraceptive pill. She is a smoker but has recently tried quitting.

What is the most likely cause for her presentation?

A.Combined oral contraceptive pill

B.Eating gluten

C.Her BMI

D.Smoking cessation

E.Smoking habit

Answer:Smoking cessation

Explanation:

Cessation of smoking may trigger an ulcerative colitis flare

Important for meLess important

Smoking cessation is correct. This patient has signs and symptoms suggestive of inflammatory bowel disease, more specifically ulcerative colitis, due to the presence of bloody stools, abdominal pain, and her findings on sigmoidoscopy (inflammation limited to the colon and rectum affecting the superficial mucosa with crypt abscesses). Patients who have difficult-to-control and severe ulcerative colitis can be offered azathioprine, which is the case in this scenario.

Of the factors mentioned, cessation of smoking is a known trigger of an ulcerative colitis flare. It is not clearly understood why, however, it is thought that nicotine increases the production of protective mucus in the rectum and colon, and suppresses the immune system, overall reducing the risk of a flare. Although this reduces the risk of a flare, the risks associated with smoking greatly outweigh the benefit of smoking to reduce the risk of a flare.

Combined oral contraceptive pill is incorrect. This is not known to be a trigger of ulcerative colitis. This is a weak risk factor for the development of Crohn's disease, which is not what this patient has.

Eating gluten is incorrect. This would be the case if this patient had coeliac disease, which is characterised by chronic non-bloody diarrhoea in response to eating gluten. Histological changes seen in coeliac disease are villous atrophy and crypt hyperplasia, which are not mentioned here, making this option incorrect. Gluten is not known to trigger an ulcerative colitis flare and there is little evidence to suggest that specific diets are beneficial in ulcerative colitis.

Her BMI is incorrect. Obesity is not known to trigger ulcerative colitis flares.

Smoking initiation is incorrect. This is a risk factor for triggering a flare of Crohn's disease, not ulcerative colitis. Smoking is protective against flares in ulcerative colitis, however, the risks associated with smoking greatly outweigh the benefit of smoking to reduce the risk of a flare.

Question:

A 37-year-old woman, with a known history of AIDS, presents to the emergency department, with a new-onset, dry cough and dyspnoea.

On examination, her heart rate is 120/min, blood pressure 110/78mmHg, respiratory rate 22/min, saturation 97% (decreasing when mobilising) and temperature 38.8ºC. A chest x-ray shows bilateral interstitial pulmonary infiltrates.

She is allergic to penicillin.

Given the most likely diagnosis, which treatment should be initiated?

A.Amoxicillin

B.Clarithromycin

C.Co-trimoxazole

D.Doxycycline

E.Piperacillin with tazobactam and erythromycin

Answer:Co-trimoxazole

Explanation:

Pneumocystis jiroveci penumonia is treated with co-trimoxazole, which is a mix of trimethoprim and sulfamethoxazole

Important for meLess important

The correct answer is co-trimoxazole. This patient is presenting with the classical features of Pneumocystis jiroveci pneumonia, the most common opportunistic infection in AIDS.

She has a new-onset, dry cough, dyspnoea and desaturation on mobilisation on a background of AIDS. Additionally, her chest x-ray shows bilateral interstitial pulmonary infiltrates, which are typical of this infection. The treatment of choice is co-trimoxazole, which is a mix of trimethoprim and sulfamethoxazole.

Amoxicillin is used as first-line management in uncomplicated community-acquired pneumonia. Given the past medical history of this patient, a diagnosis of Pneumocystis jiroveci pneumonia is much more likely. Additionally, the patient is allergic to penicillin.

Clarithromycin is a medication used as second-line management in uncomplicated community-acquired pneumonia when the patient cannot take amoxicillin. Given the past medical history of this patient, a diagnosis of Pneumocystis jiroveci pneumonia is much more likely.

Doxycycline is s a medication used as second-line management in uncomplicated community-acquired pneumonia when the patient cannot take amoxicillin or clarithromycin. Given the past medical history of this patient, a diagnosis of Pneumocystis jiroveci pneumonia is much more likely.

Piperacillin with tazobactam and erythromycin are used to manage high-severity community-acquired pneumonia. Given the past medical history of this patient, a diagnosis of Pneumocystis jiroveci pneumonia is much more likely.

Question:

A 74-year-old man presents to surgery after seeing his optician. They have noticed raised intra-ocular pressure and decreased peripheral vision. His past medical history includes asthma and type 2 diabetes mellitus. You refer him on to ophthalmology. What treatment is he most likely to be started on given the likely diagnosis?

A.Latanoprost

B.Pilocarpine

C.Timolol

D.Dorzolamide

E.Brimonidine

Answer:Latanoprost

Explanation:

A prostaglandin analogue should be used first-line in patients with a history of asthma.

Question:

A 26-year-old woman presents with a six-month history of difficulty sleeping. She often lies awake at night worrying about stresses at work and in her family life. These periods of worry are often accompanied by chest tightness and palpitations. She thinks that she may be suffering from anxiety and has tried mindfulness, sleep hygiene and reducing caffeine with little benefit and would like to try medication.

Which of the following would be the most appropriate medication to prescribe?

A.Diazepam

B.Duloxetine

C.Mirtazapine

D.Sertraline

E.Zopiclone

Answer:Sertraline

Explanation:

SSRIs are the first-line pharmacological therapy for generalised anxiety disorder

Important for meLess important

The correct answer is sertraline.

This patient has generalised anxiety disorder (GAD). Given that she has already tried non-pharmacological measures herself with little benefit medication would be the next step. A selective serotonin reuptake inhibitor (SSRI) such as sertraline would be the first-line medication.

Diazepam is a benzodiazepine and not recommended in the treatment of GAD. It can cause tolerance and addiction.

Duloxetine is a serotonin-norepinephrine reuptake inhibitor (SNRI) and so not recommended as first-line for GAD. It may be an appropriate second-line medication if she does not respond to the sertraline.

Mirtazapine is an antidepressant with multiple effects, it is often described as a noradrenergic and specific serotonergic antidepressant (NaSSA). It has many uses but is not generally recommended in the treatment of GAD.

Zopiclone is a Z-drug that can be prescribed for patients with insomnia. While it may help short-term with her sleep issues it should not be used for long periods of time due to the risk of dependence and tolerance. Additionally it would not treat her underlying anxiety disorder.

Question:

A 27-year-old female presents to her GP with dizziness, nausea, and unilateral hearing loss which has been consistent for the past 2 days. Upon questioning, she denies having ever experienced symptoms like this before. She reports no tinnitus, otalgia or otorrhoea.

Upon examination, she is afebrile and does not appear to be in pain. Examination of her ears shows no abnormalities.

What is the most likely diagnosis?

A.Acute labyrinthitis

B.Benign paroxysmal positional vertigo (BPPV)

C.Meniere's disease

D.Otitis media

E.Vestibular neuronitis

Answer:Acute labyrinthitis

Explanation:

Unaffected hearing distinguishes vestibular neuronitis from labyrinthitis

Important for meLess important

This patient has presented with symptoms of nausea, dizziness, and hearing loss. The likely diagnosis is labyrinthitis due to hearing loss. Labyrinthitis is inflammation of the labyrinth of the inner ear and presents with these symptoms and a sensorineural hearing loss.

BPPV is a condition where there is dizziness and vertigo associated with sudden head movements and tends to last only a few seconds. It does not affect hearing.

Meniere's disease is a condition of the inner ear which is characterised by attacks of hearing loss, dizziness, and fullness in the ears. It tends to come in attacks and this woman denies any previous symptoms like this making it lower down in the differentials.

Otitis media refers to an infection of the middle ear and presents with ear pain, hearing loss and can have systemic upset such as a fever. This woman is unlikely to have otitis media due to the lack of ear pain and also the fact her ear examination was normal. Otitis media often makes the tympanic membrane red and bulging.

Vestibular neuronitis is an inflammation of the eighth cranial nerve and presents similarly to labyrinthitis, however, it can be distinguished from the condition by the fact that vestibular neuronitis does not cause hearing loss.

Question:

A 40-year-old musician complains of problems detecting pitch when he is playing the violin. You arrange an audiogram:

What does the audiogram show?

A.Right mixed hearing loss

B.Right sensorineural hearing loss

C.Right conductive hearing loss

D.Left conductive hearing loss

E.Bilateral mixed hearing loss

Answer:Right sensorineural hearing loss

Explanation:

Question:

A 70-year-old man has been admitted with abdominal pain. The surgeons wish to perform a contrast-enhanced CT but are concerned because he has chronic kidney disease stage 3. His latest renal function is shown below:

Na+ 142 mmol/l

K+ 4.6 mmol/l

Urea 8.1 mmol/l

Creatinine 130 µmol/l

Which one of the following is the most important step in reducing the risk of contrast-induced nephropathy?

A.Oral sodium bicarbonate pre- and post-procedure

B.Oral N-acetylcysteine pre- and post-procedure

C.Intravenous 0.9% sodium chloride pre- and post-procedure

D.Intravenous furosemide pre-procedure

E.Intravenous mannitol post-procedure

Answer:Intravenous 0.9% sodium chloride pre- and post-procedure

Explanation:

Prevention of contrast-induced nephropathy: volume expansion with 0.9% saline

Important for meLess important

The evidence base is much stronger for volume expansion with normal saline than for N-acetylcysteine.

Question:

A 25-year-old cyclist is hit by a bus traveling at 30mph. He was not wearing a helmet. He arrives with a GCS of 3/15 and is intubated. A CT scan shows evidence of cerebral contusion but no localising clinical signs are present. What is the most appropriate course of action?

A.Burr hole decompression

B.Decompressive craniotomy

C.Insertion of intra cranial pressure monitoring device

D.Administration of intravenous mannitol

E.Parietotemporal craniotomy

Answer:Insertion of intra cranial pressure monitoring device

Explanation:

This patient may well develop raised ICP over the next few days and intracranial pressure monitoring will help with management.

Question:

A 33-year-old woman presents with her concerned partner. She has been behaving erratically, with a rapidly changeable mood, following the birth of their son 8 days ago. During the consultation, she appears agitated and restless.

Her partner reports she has been preventing herself from sleeping due to paranoia that something terrible will happen to their baby.

She has known depression but has not taken her fluoxetine for 5 months due to fears of developing complications.

What would be the most appropriate management option?

A.Admit to hospital for urgent assessment

B.Prescribe medication to help her sleep

C.Reassurance that low mood after giving birth should improve with time

D.Restart fluoxetine at a low dose, titrating to control symptoms

E.Restart her regular fluoxetine at her usual dose

Answer:Admit to hospital for urgent assessment

Explanation:

Women with postpartum psychosis usually requires hospitalisation, ideally in a Mother & Baby Unit

Important for meLess important

Admit to hospital for urgent assessment is the correct answer. She is likely suffering from postpartum psychosis, due to the symptoms of agitation and paranoid delusions. There is a significant risk to the mother and baby.

Postpartum psychosis differs from postnatal depression, which can present with low mood, lack of energy and lack of appetite. Postpartum psychosis may include mania, depression, irritability, rapid changes in mood, severe confusion, agitation, paranoia, delusions and/or hallucinations.

Prescribe medication to help her sleep is an incorrect answer. Prescribing medication to aid in sleep is not appropriate in this case, firstly the patient is telling you she does not want to sleep due to her paranoia, and secondly, it will not help to manage her other current symptoms or ensure the safety of herself or her baby.

Reassurance that low mood after giving birth should improve with time is an incorrect answer. It is not appropriate due to the risk to herself and her baby. Reassurance would be a reasonable option (with safety net advice) if a patient was presenting with typical baby blues symptoms. However, this patient is much more likely to be suffering from postpartum psychosis, and so requires hospitalisation.

Restart fluoxetine at a low dose, titrating to control symptoms is an incorrect answer. Gradual titration of fluoxetine would not manage her acute symptoms, as this option may take several weeks or months and would not ensure the safety of her or her baby.

Restart her regular fluoxetine at her usual dose is an incorrect answer. It is not appropriate as this will not manage her acute symptoms or provide the safety required for her family.

Question:

A 72-year-old male is admitted to the urology ward with acute urinary retention. He is catheterised successfully with a large retention volume of 1.2 litres and therefore kept on the ward for observation. Over the next 24 hours, the patient has a urine output of 250ml/hour and develops increasing confusion. His blood results are as follows:

Hb 140 g/L Male: (135-180)

Platelets 300 \* 109/L (150 - 400)

WBC 10 \* 109/L (4.0 - 11.0)

Na+ 134 mmol/L (135 - 145)

K+ 4.8 mmol/L (3.5 - 5.0)

Urea 9 mmol/L (2.0 - 7.0)

Creatinine 135 µmol/L (55 - 120)

CRP 4 mg/L (< 5)

What is the most likely cause of the patient's confusion?

A.Delirium

B.Diabetes insipidus

C.Pain secondary to acute urinary retention

D.Post-obstructive diuresis

E.Urinary tract infection

Answer:Post-obstructive diuresis

Explanation:

Patients may develop post-obstructive diuresis following catheterisation for acute urinary retention

Important for meLess important

The most likely cause of this patient's confusion is post-obstructive diuresis, which has lead to an acute kidney injury. Following resolution of the retention through catheterisation, the kidneys can often over-diuresis due to the loss of their medullary concentration gradient, which can take time to re-equilibrate. This over-diuresis can lead to a worsening AKI. Consequently, those patients at risk should have their urine output monitored over the following 24 hours post-catheterisation. Patients producing >200ml/hr urine output should have around 50% of their urine output replaced with intravenous fluids to avoid any worsening AKI.

Delirium can manifest as confusion. Common causes include infection and poorly controlled pain. As there are no markers for infection on the patient's blood tests and no mention of pain, delirium would not be the primary differential diagnosis.

Diabetes insipidus is a cause of polyuria but is unlikely in this case due to a lack of precipitating factors, such as lithium therapy.

Urinary tract infections can cause confusion, and this patient is at a higher risk of infection due to his catheter. However, there are no markers of infection on the blood tests, and the infection is unlikely to cause confusion within 24 hours of catheterisation.

Acute urinary retention is painful, however, it is likely that this pain will resolve upon catheterisation. Therefore, pain is an unlikely cause for this patient's worsening confusion.

Question:

An 83-year-old lady attends with a history of falls. She has a past medical history of osteoporosis, constipation, frequent urinary tract infections, ischaemic heart disease and urge incontinence.

After a thorough history and examination, you decide that these are likely multifactorial related to a combination of physical frailty, poor balance and medication burden. Which one of the following medications should you stop in the first instance?

A.Lactulose

B.Aspirin

C.Oxybutynin

D.Trimethoprim

E.Alendronic acid

Answer:Oxybutynin

Explanation:

Oxybutynin should not be used in the frail elderly population due to increased risk of falls. Safer alternatives include solifenacin and tolterodine. Mirabegron, a newer drug on the market, may also be useful as it thought to have less anti-cholinergic side effects.

You are unlikely to help this woman by stopping her laxatives if she has ongoing constipation. The alendronic acid and aspirin are appropriate given her osteoporosis (and falls risk) and ischaemic heart disease respectively.

The use of long term trimethoprim as prophylaxis for urinary tract infections is somewhat controversial but would certainly not be the first thing that should be stopped.

Question:

A 55-year-old man who has a history of ischaemic heart disease presents with myalgia. His long-term medications include aspirin, simvastatin and atenolol. Given his statin use a creatine kinase is measured and reported as follows:

Creatine kinase 1,420 u/l (< 190 u/l)

His problems seem to have followed the prescription of a new medication. Which one of the following is most likely to have caused the elevation in creatine kinase?

A.Rifampicin

B.Felodipine

C.Clarithromycin

D.Isosorbide mononitrate

E.Amitriptyline

Answer:Clarithromycin

Explanation:

Statins + erythromycin/clarithromycin - an important and common interaction

Important for meLess important

This patient has developed statin-induced myopathy secondary to clarithromycin.

Question:

A 55-year-old man sees his GP for left flank pain. There is no past medical history of note, although the man has smoked a pack of cigarettes a day for 20 years.

On examination, there is tenderness but no mass in the left flank. Dipstick testing of his urine is positive for blood.

A complicated cystic mass arising from the parenchyma of the left kidney is seen on a CT scan of the abdomen. The mass contains solid and liquid components, and is septated.

Which of the following diagnoses is most likely?

A.Renal cell carcinoma

B.Transitional cell carcinoma

C.Simple cyst

D.Angiomyolipoma

E.Renal infarct

Answer:Renal cell carcinoma

Explanation:

The most common histological type of malignant renal cancer is clear cell carcinoma

Important for meLess important

Flank pain, mass and haematuria are the classic triad of renal cancer. However, it is uncommon for all three findings to be present at initial diagnosis.

The most common histological type of malignant renal cancer is clear cell carcinoma. It may be differentiated from a simple cyst by its variegated, septated interior.

Transitional cell carcinomas are rarer, and usually arise from the ureter

Angiomyolipomas are also rare, and are associated with tuberous sclerosis.

Renal infarcts are common in infectious endocarditis, and appear as wedge-shaped hypo-densities.

Question:

A 30-year-old para 1+0 has presented at term in labour. On vaginal examination, the occiput can be palpated posteriorly (near the sacrum). Which of these is correct regarding your further management of these patients?

A.The fetal head may rotate spontaneously to an OA position

B.Delivery is impossible without rotation

C.Augmentation should be avoided if labour is slow

D.If instrumentation is necessary, a ventouse is associated with the most successful outcomes

E.Mothers will generally experience a later urge to push than if position was OA

Answer:The fetal head may rotate spontaneously to an OA position

Explanation:

1: Correct.

2: Delivery is possible in the OP position, however labour is likely to be longer and more painful.

3: Augmentation should be used if progress is slow.

4: Kielland's forceps are associated with the most successful outcomes, however require particular expertise.

5: Generally, women will experience an earlier urge to push in OP than OA.

Question:

A 35-year-old woman who is 27 weeks pregnant presents to the emergency department with painless vaginal bleeding. She had her third baby two years ago, which was delivered via a c-section, but otherwise was a normal pregnancy. Following an obstetric examination, her uterus was non-tender, however, her baby was in breech presentation. Foetal heart rate was also normal. She denied feeling any contractions when she was bleeding.

Given the most likely diagnosis, what is the next best investigation?

A.Full blood count

B.MRI placenta

C.Transabdominal ultrasound

D.Translabial ultrasound

E.Transvaginal ultrasound

Answer:Transvaginal ultrasound

Explanation:

Transvaginal ultrasound is used to investigate suspected placenta praevia

Important for meLess important

The vignette describes a patient with a classic history of placenta praevia (painless vaginal bleeding). Additionally, she has had multiple pregnancies and a prior c-section; both are risk factors for placenta praevia. If placenta praevia is suspected, an ultrasound is the most appropriate investigation tool as it is diagnostic of this condition. Due to its high sensitivity and specificity values, a transvaginal ultrasound is the most appropriate option and is recommended by most gynaecology colleges (RCOG).

Full blood count is incorrect and would only show anaemia. FBC will not be sufficient to diagnose this patient.

MRI placenta is incorrect and should only be ordered if placenta abruption can't be excluded using ultrasound.

A transabdominal ultrasound may be a more appropriate option for examining the organs in the abdomen such as the liver and spleen. However, as this patient's vignette describes a case of placenta praevia, a transvaginal ultrasound would be more suitable and diagnostic of this condition.

A translabial ultrasound is a better option for investigating placenta praevia compared to transabdominal ultrasound, however, RCOG recommend transvaginal ultrasound due to its high specificity and sensitivity with regard to placenta praevia.

Question:

A thirty-four-year-old man with ulcerative colitis is recovering on the ward 6 days following a proctocolectomy. During the morning ward round he complains to the team looking after him that he has developed pain in his abdomen. The pain started in the left iliac fossa but is now diffuse. It came on suddenly, overnight, and has gradually been getting worse since. He ranks it an 9/10. He has not opened his bowels or passed flatus since the procedure. He has had no analgesia for this.

On examination:

Blood pressure: 105/68 mmHg; Heart rate: 118/minute, regular; Respiratory rate: 12/minute; Temperature: 38.2 ºC; Oxygen saturations: 98%.

Abdominal exam: abdomen is distended and diffusely tender upon palpation and widespread guarding, indicating peritonism. No organomegaly or palpable abdominal aortic aneurysm. Kidneys are non ballotable. No shifting dullness. Bowel sounds are absent.

There is 250 mL of feculent matter in the abdominal wound drain.

The registrar requests an abdominal CT which demonstrates an anastomotic leak. What is the most appropriate initial management of this patient?

A.Conservative management only, involving making the patient ‘nil by mouth’, placing an NG tube and giving the patient IV fluids

B.IV Paracetamol to reduce pyrexia

C.Call the consultant to come in and take the patient to theatre immediately

D.Call the consultant on call to let him know of the issue and place the patient on the emergency list for the next day

E.IV benzylpenicillin

Answer:Call the consultant to come in and take the patient to theatre immediately

Explanation:

An anastomotic leak is a surgical emergency and patients must be taken back to theatre as soon as possible

Important for meLess important

This patient has a confirmed anastomotic leak. This is a surgical emergency and the patient must return to theatre as soon as possible (3). Whilst (4) involves placing the patient on an emergency list and informing the consultant, this is incorrect as the patient cannot wait until the next day’s list to return to theatre. This delay may lead to intraabdominal sepsis, multi-organ dysfunction and death.

Option 1 is the treatment for bowel obstruction and would be inappropriate and ineffective for this patient.

The administration of solely paracetamol or intravenous antibiotics (5,2)without surgical intervention would be inappropriate as neither of these measure would fix the issue.

Question:

A 38-year-old woman presents to the emergency department with poorly-defined symptoms of headache and drowsiness. She has a past medical history of asthma and is known to be HIV-positive.

An urgent CT head scan is requested, which demonstrates a single brain lesion with homogenous enhancement. A subsequent thallium SPECT scan is conducted and has a positive result.

Given the findings, what is the most likely diagnosis?

A.Encephalitis

B.Lymphoma

C.Progressive multifocal leukoencephalopathy (PML)

D.Toxoplasmosis

E.Tuberculosis

Answer:Lymphoma

Explanation:

HIV, neuro symptoms, single brain lesions with homogenous enhancement - CNS lymphoma

Important for meLess important

The most likely finding here is primary CNS lymphoma, given the neurological symptoms in an HIV-positive patient and the single brain lesion with homogenous enhancement. Treatment generally involves steroids, chemotherapy and possible surgical intervention.

Encephalitis may be due to HIV itself, or co-infection with cytomegalovirus. It would present more acutely and with worsening confusion; the CT scan would show an oedematous brain.

PML has a more subacute onset of behavioural changes, speech, motor and visual impairment. It is due to widespread demyelination, occurring due to the infection of oligodendrocytes by JC virus. Rather than the CT findings seen here, which demonstrate enhancement, the single/multiple lesions seen in PML do not usually enhance.

Toxoplasmosis is an important differential in HIV-positive patients, accounting for 50% of cerebral lesions in that cohort. It presents with similar symptoms to this patient, but CT would show ring-enhancing lesions rather than homogenous enhancement. Treatment is with sulfadiazine and pyrimethamine.

Tuberculosis is much less common than toxoplasmosis or primary CNS lymphoma in HIV-positive patients. CT scan would also show a single, enhancing lesion, but CNS lymphoma is still more likely.

Question:

While working on a paediatrics ward as a junior doctor you are looking after 2-year-old boy with X-linked nephrogenic diabetes insipidus. He was recently diagnosed after his parents noticed that he was experiencing excessive polydipsia and polyuria. What is the pharmacological treatment of choice in this condition from the list below?

A.Desmopressin

B.Vasopressin

C.Terlipressin

D.Chlorothiazide

E.Furosemide

Answer:Chlorothiazide

Explanation:

The aim of this question is to make sure you don't get caught out by the differing mechanism of nephrogenic compared to cranial diabetes insipidus (DI). As the treatment for each is very different.

Cranial diabetes insipidus essentially means the body is unable to produce sufficient amounts of vasopressin a.k.a antidiuretic hormone (ADH). This is can be treated with synthetic forms of vasopressin such as desmopressin.

Nephrogenic diabetes insipidus on the other hand is caused by the kidneys inability to respond to vasopressin. This means giving a patient synthetic vasopressin will be ineffective. It may seem paradoxical that a thiazide diuretic would be a treatment for this condition as polyuria is a symptom of the disorder.

In simple terms DI leads to the production of vast amounts of dilute urine which is dehydrating and raises the plasma osmolarity, stimulating thirst. The effect of the thiazide causes more sodium to be released into the urine. This lowers the serum osmolarity which helps to break the polyuria-polydipsia cycle.

Question:

Which one of the following is most associated with raised levels of carcinoembryonic antigen?

A.Breast cancer

B.Colorectal cancer

C.Hepatocellular carcinoma

D.Ovarian cancer

E.Pancreatic cancer

Answer:Colorectal cancer

Explanation:

Carcinoembryonic Antigen (CEA) is a tumour marker in colorectal cancer and has a role in monitoring disease activity

Important for meLess important

Question:

A 28-year-old woman who is an intravenous heroin user comes for review. Which one of the following complications is most likely to occur as a result of her drug use?

A.Seizures

B.Osteoporosis

C.Peptic ulcer disease

D.Schizophrenia

E.Venous thromboembolism

Answer:Venous thromboembolism

Explanation:

Question:

A 35-year-old former intravenous drug user is reviewed in the liver clinic. He has recently been diagnosed with hepatitis C after being found to have abnormal liver function tests. It is decided as part of his work-up that he should be assessed for liver cirrhosis. What is the most appropriate test to perform?

A.MRI liver

B.Liver biopsy

C.Urinary fibroblast quantification

D.Endoscopic ultrasound

E.Transient elastography

Answer:Transient elastography

Explanation:

Transient elastography may be useful for diagnosing and monitoring the severity of liver cirrhosis

Important for meLess important

NICE recommend that all patients with hepatitis C are assessed for liver cirrhosis.

Question:

Primary biliary cirrhosis is most characteristically associated with:

A.Anti-nuclear antibodies

B.Anti-ribonuclear protein antibodies

C.Anti-mitochondrial antibodies

D.Rheumatoid factor

E.Anti-neutrophil cytoplasmic antibodies

Answer:Anti-mitochondrial antibodies

Explanation:

Primary biliary cholangitis - the M rule

IgM

anti-Mitochondrial antibodies, M2 subtype

Middle aged females

Important for meLess important

Question:

You are a medical student in a solo clinic on your GP rotation. A celibate 19-year-old patient attends requesting a repeat prescription for her contraceptive pill for her acne. Without prompt, she tells you she would prefer not to have another vaginal examination, as the male GP she usually sees has performed them a couple times before, without a chaperone and she finds it uncomfortable. On further questioning, she is unsure why she needed these examinations but says that her friends in similar situations have also be treated similarly by the same GP. After raising your concerns with the GP in question, he angrily refuses to explain himself to a student and tells you not to question his judgement again as 'he has been doing this job for a long time'. You are not reassured by this and still have concerns. What is the best course of action?

A.Do nothing, the GP probably had a good reason to examine the patient at the time

B.Confront the GP again after he has calmed down as to the appropriateness of these examinations

C.Phone the police as you believe there has been a breach of sexual boundaries towards the patient

D.Raise your concerns with one of the partners at the GP practice

E.Ask other practice staff if they have any concerns about the GP in question

Answer:Raise your concerns with one of the partners at the GP practice

Explanation:

Option four is the correct answer. It is good practice to first directly ask the colleague in question if you have concerns, as they may be easily justifiable and can be resolved quickly. After this, however, if you still have concerns over patient welfare and are unsure how to take these concerns further, you should raise the issue with a senior member of staff or impartial colleague. Option one does nothing to address the issue whilst confronting the GP again may lead to confrontation, and so it may be more suitable for a more senior colleague to approach the colleague in question. Asking other members of staff is inappropriate and phoning the police is an overreaction at this stage. More information can be found on the GMC website under raising and acting on concerns.

http://www.gmc-uk.org/guidance/ethicalguidance/raisingconcerns.asp

Question:

A 55-year-old man treated for infero-posterior myocardial infarction develops difficulty breathing on the fourth day. On examination, he is afebrile, has a pulse rate of 130/min, respiratory rate of 22/min, and blood pressure of 80/50 mmHg. A new pansystolic murmur is heard best at the apex on auscultation. Echocardiography confirms acute mitral regurgitation.

Which of the following is the cause of these symptoms in this patient?

A.Formation of left ventricular aneurysm

B.Rupture of chordae tendineae

C.Rupture of the interventricular septum

D.Rupture of the papillary muscle

E.Rupture of ventricular free wall

Answer:Rupture of the papillary muscle

Explanation:

Rupture of the papillary muscle due to a myocardial infarction → acute mitral regurgitation → widespread systolic murmur, hypotension, pulmonary oedema

Important for meLess important

Acute mitral regurgitation is a complication of myocardial infarction (MI), which most commonly occurs 2 to 7 days after MI. Acute hypotension and pulmonary oedema may occur. A systolic murmur is typically heard, and an echocardiogram is diagnostic. This patient developed mitral regurgitation (difficulty breathing, hypotension, and new onset pansystolic murmur) on fourth day post-MI. It is common with infero-posterior infarction and is due to the rupture of the papillary muscle.

A left ventricular aneurysm is formed due to the ischaemic damage which may weaken the myocardium. This is typically associated with persistent ST elevation and left ventricular failure.

Partial or complete rupture of dysplastic chordae tendineae also results in mitral regurgitation. But it commonly occurs due to myxomatous disease (mitral valve prolapse), infective endocarditis, or rheumatic heart disease.

Rupture of the interventricular septum (ventricular septal defect) usually occurs in the first week. Features include acute heart failure associated with a pan-systolic murmur. An echocardiogram is diagnostic and will exclude acute mitral regurgitation, which presents in a similar fashion.

Left ventricular free wall rupture occurs around 1-2 weeks afterwards. Patients present with acute heart failure secondary to cardiac tamponade (raised JVP, pulsus paradoxus, diminished heart sounds).

Question:

A 77-year-old man is seen in the cardiology clinic with chronic heart failure.

He is still experiencing dyspnoea and palpitations on exertion, despite being less active than usual. His most recent echocardiogram shows a left ventricle ejection fraction of 30%.

You decide to start him on sacubitril-valsartan.

What medication must be stopped 36 hours before commencing the new treatment?

A.Bisoprolol

B.Digoxin

C.Eplerenone

D.Ramipril

E.Spironolactone

Answer:Ramipril

Explanation:

Sacubitril-valsartan should be initiated following ACEi or ARB wash-out period

Important for meLess important

Ramipril is the correct answer. It is an angiotensin-converting enzyme inhibitor (ACE inhibitor). There should be a 36-hour ‘washout’ period between stopping ACE inhibitor therapy and starting sacubitril-valsartan to minimise the risk of angioedema. Co-administration of sacubitril (a neprilysin inhibitor) with an ACE inhibitor potentiates the levels of plasma bradykinin as they both inhibit bradykinin degradation, resulting in a higher risk of angioedema. In order to reduce this risk a 36 hour washout period is required to prevent the accumulation of bradykinin.

Another medication that needs to be stopped prior to commencing sacubitril-valsartan is angiotensin receptor blockers (ARB). As sacubitril-valsartan contains valsartan (an ARB), they should not be administered together.

Bisoprolol is a beta-blocker used in heart failure. It does not need to be stopped prior to starting sacubitril-valsartan.

Digoxin is a cardiac glycoside sometimes used in heart failure to slow the heart rate. It does not need to be stopped prior to starting sacubitril-valsartan.

Eplerenone is an aldosterone antagonist used in heart failure. It does not need to be stopped prior to starting sacubitril-valsartan.

Spironolactone is another aldosterone antagonist used in heart failure. It does not need to be stopped prior to starting sacubitril-valsartan.

Question:

A 46-year-old woman presents to general practice with fatigue, associated with unintentional weight loss. This has been ongoing for the last 4 months. On examination, she has splenomegaly and conjunctival pallor. A set of tests are ordered.

Hb 9.2 g/l (Low)

Platelets 701 \* 109/ (raised)

WBC 9.8 \* 109/ (normal)

Neuts 77% (raised)

Lymphs 17% (low)

Eosin 2.4% (normal)

Chromosomal analysis confirms diagnosis. What is the most likely diagnosis?

A.Essential thrombocytosis

B.Polycythemia rubra vera

C.Chronic myeloid leukemia

D.Chronic lymphocytic leukaemia

E.Neutrophilic lymphoma

Answer:Chronic myeloid leukemia

Explanation:

Thrombocytosis can occur in chronic myeloid leukaemia

Important for meLess important

Thrombocytosis can occur in chronic myeloid leukaemia. Essential thrombocytosis would not explain the raised neutrophils and anaemia. It does not fit with the symptom profile either.

Polycythemia rubra vera would have raised haemoglobin. Symptoms do not fit with this diagnosis.

Chronic lymphocytic leukaemia would have raised lymphocytes.

Neutrophilic lymphoma this does not exist.

The blood work shows raised neutrophils and thrombocytosis. All of which are of myeloid lineage. Coupled with anaemia this would make CML highly likely. CML patients present with thrombocytosis in some cases.

Question:

A 29-year-old man presents with a lump in his scalp. It is located approximately 4cm superior to the external occipital protuberance. It feels smooth and slightly fluctuant and has a centrally located small epithelial defect. What is the most likely underlying diagnosis?

A.Cocks peculiar tumour

B.Dermoid cyst

C.Sebaceous cyst

D.Merkel cell tumour

E.Seborrhoeic wart

Answer:Sebaceous cyst

Explanation:

Sebaceous cysts are most frequently located in the scalp and have an associated central punctum.

Question:

A 72-year-old woman presents to the general practitioner with a 5-month history of a lump on the side of her face. She reports that it has been slowly getting bigger in this time. The lump is a well-demarcated, non-tender lesion on her left cheek, which is mobile when palpated. The patient reports no other signs or symptoms.

What is the most likely diagnosis?

A.Mumps

B.Parotid adenocarcinoma

C.Parotid pleomorphic adenoma

D.Parotid squamous cell carcinoma

E.Parotid sialolithiasis

Answer:Parotid pleomorphic adenoma

Explanation:

Slow growing, painless, mobile lump in the parotid gland of older female → ? Pleomorphic adenoma

Important for meLess important

This scenario describes an older woman presenting with a slow-growing lump in her left cheek. Given the anatomy of this region, the most likely affected structure is the left parotid gland. Given that the lump is painless, well-demarcated, and slowly enlarging, the pathology is most likely to be benign in nature. From the provided options, a parotid gland pleomorphic adenoma is the most likely diagnosis.

Benign tumours are responsible for the majority of parotid cancers, with pleomorphic adenoma being the most common type. These benign lesions tend to be slow-growing, and like other benign cancers are characteristically described as being well-demarcated and mobile. Pleomorphic adenomas are normally painless, however, they can cause symptoms if interrupting neighbouring structures (such as the jaw).

Mumps is an incorrect answer. Mumps is caused by the mumps virus, and most often presents with bilateral parotid gland swelling 14-25 days after becoming infected. The glands often painful, tender, and cause the individual to have difficulty swallowing. The above case describes a very different unilateral presentation, making mumps unlikely.

Parotid gland adenocarcinoma is a rare form of malignant cancer affecting the epithelial cells of the parotid gland. Whilst this may present similarly to the described case, given that benign disease is much more prevalent than malignancy, pleomorphic adenoma is a more likely diagnosis.

Parotid gland squamous cell carcinoma is another form of parotid gland malignancy. It is a rare cause of parotid gland swelling, and unlike the described case is often fast progressing (i.e. rapid growth of the lump).

Parotid sialolithiasis is the presence of calculus (stone) within the parotid gland. This obstruction of the outflow of saliva can cause a swollen gland, which is often most painful when eating or thinking about food (due to attempted gland excretion of saliva). It is unlikely to be the cause in this described case given the prolonged presentation and absence of pain.

Question:

A 24-year-old man presents to the emergency department after a fall whilst cycling a couple of hours ago. He is grasping his right shoulder and is in obvious pain. The patient does not report any fever or other systemic symptoms and there is no red skin around the joint. An anteroposterior x-ray is ordered which shows that the humeral head is dislodged from the glenoid cavity of the scapula anteriorly.

Given the likely diagnosis, what is the most appropriate initial management?

A.Intra-articular lidocaine

B.Intra-articular lidocaine and intravenous morphine

C.Kocher-technique reduction

D.Shoulder immobilisation

E.Shoulder surgery

Answer:Kocher-technique reduction

Explanation:

Shoulder reduction without analgesia/sedation in selected patients with a recent dislocation

Important for meLess important

Kocher technique reduction is the correct option. This patient is suffering from an anterior shoulder dislocation where the humeral head dislodges from the glenoid cavity of the scapula. There are a large number of techniques for reducing shoulders and there is currently no established consensus as to which technique provides the most effective way of reducing the humeral head. In managing a patient with a recent anterior dislocated shoulder, it has been shown that a few techniques are effective without the use of any medication for pain relief. One of these techniques is the Kocher technique where the affected arm is bent at the elbow, pressed against the body, and rotated outwards until resistance is felt. Then lift the affected arm that is externally rotated in the sagittal plane as far as possible forwards and finally turn inwards slowly.

Intra-articular lidocaine and intravenous morphine are not correct as there is no need for sedation or analgesia when performing the Kocher manoeuvre.

Shoulder immobilisation is not correct. Timely management of anterior shoulder dislocation through reduction is essential for optimal patient outcomes, as there is a higher risk of unstable reduction if the shoulder is left untreated for over 24 hours from the initial injury. An early reduction will also lead to a lower risk of muscle spasms and damaging manipulation of the neurovascular structures within the shoulder. Patients may then have their shoulder immobilised but this would only come after immediate reduction.

Shoulder surgery is not the correct option. A referral for shoulder surgery is not made in those presenting with a dislocated shoulder for the first time. In those with recurrent dislocation or those with symptoms impacting the patient's job or leisure activities, shoulder surgery may be considered.

Question:

A young woman with asthma attended the ED with shortness of breath. She couldn't speak in full sentences. Peak expiratory flow rate (PEFR) was 47% of predicted, heart rate 95/min and respiratory rate 26/min. Her normal inhaler was ineffective. She was treated with nebulised salbutamol, oral prednisolone and ipratropium bromide.

Acute treatment was stopped 9 hours ago. She has since been stable on discharge medication. Her PEFR is currently 78% of predicted. In her notes, a doctor has recorded that she demonstrated a good inhaler technique.

What criteria does she still need to meet to be eligible for discharge?

A.She needs a PEFR of above 80%

B.She needs counselling on inhaler technique

C.She needs to be stable on discharge medication for at least 12-24 hours before discharge

D.She needs to be stable on discharge medication for at least 48 hours before discharge

E.She needs to stay under observation for at least a week

Answer:She needs to be stable on discharge medication for at least 12-24 hours before discharge

Explanation:

Prior to discharge, following an acute asthma attack, a patient should have been stable on their discharge medication (i.e. no nebulisers or oxygen) for 12–24 hours

Important for meLess important

For discharge after an acute asthma attack, individuals must have a PEFR >75% of expected, have had their inhaler technique checked and recorded and be stable on discharge medications (i.e. no longer requiring acute asthma treatment) for at least 12-24 hours. Her PEFR is 78% and she has had her inhaler technique checked, however, she has not been stable on her discharge medication long enough to be discharged (she has been stable for 9 hours when at least 12 hours is needed).

She needs a PEFR of above 80% is incorrect - PEFR needs to be >75% for discharge. Her PEFR is 78%.

She needs counselling on inhaler technique is incorrect. She has demonstrated good inhaler technique to a doctor and this has been recorded. She would only need counselling if her technique was inadequate.

She needs to be stable on discharge medication only for at least 48 hours before discharge is incorrect as she only needs to be stable on discharge medications for 12-24 hours.

She needs to stay under observation for at least a week is incorrect - after an acute asthma attack, individuals are treated until they become stable on their discharge medications. They only need to be stable on discharge medication for 12-24 hours to be eligible for discharge.

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Question:

A 65-year-old patient with a history of bipolar disorder presents to your GP surgery after having routine blood tests. He has had no symptoms since his last check-up, and feels entirely well. Clinical examination is normal, with no splenomegaly or lymphadenopathy.

The results are as follows:

Hb 140 g/L Male: (135-180)

Female: (115 - 160)

Platelets 160 \* 109/L (150 - 400)

WBC 14 \* 109/L (4.0 - 11.0)

Na+ 144 mmol/L (135 - 145)

K+ 4.7 mmol/L (3.5 - 5.0)

Urea 5.4 mmol/L (2.0 - 7.0)

Creatinine 114 µmol/L (55 - 120)

Thyroid stimulating hormone (TSH) 5.2 mU/L (0.5-5.5)

Free thyroxine (T4) 9.5 pmol/L (9.0 - 18)

Lithium level 0.75 mmol/L (0.6 - 1.2)

What would you advise this patient?

A.Safety net to return if symptoms develop, arrange repeat blood tests as per usual, under the normal monitoring schedule

B.Prescribe antibiotics for the patient to only take if they develop symptoms, with review in 1 week

C.Prescribe antibiotics for the patient to take immediately, with repeat bloods and review in 1 week

D.Referral to haematology for further investigation

E.Withhold the lithium and discuss with the local psychiatry team

Answer:Safety net to return if symptoms develop, arrange repeat blood tests as per usual, under the normal monitoring schedule

Explanation:

Lithium can precipitate a benign leucocytosis

Important for meLess important

Lithium is commonly used as a mood-stabiliser in bipolar disorder, and follow-up is important as lithium can cause thyroid, cardiac, renal and neurological sequelae (please see the investigation schedule in the notes below).

Benign leucocytosis is a relatively common finding associated with various drugs, most commonly corticosteroids, lithium and beta-blockers. Together with an unremarkable examination, safety netting for infective or malignant signs, and continuing the normal monitoring schedule is most appropriate in this case.

Option 2 and 3 - There are no signs or symptoms to suggest infection, and would be an inappropriate use of antibiotics.

Option 4 - This isn't a bad idea, especially if you're unsure whether this could be malignant leucocytosis associated with, for example, a leukaemia. However, the absence of any other symptoms that would be expected with malignant leucocytosis (night sweats, weight loss, bleeding, lymphadenopathy and bone pain, to name a few) would suggest that this option may be over-kill at this stage.

Option 5 - It would be unwise to withhold the lithium considering it is working well for this patient. Psychiatric teams are usually the better placed colleagues to make such decisions, although discussing with their psychiatric team in isolation may be a fair decision to take.

Question:

A 50-year-old woman presents to the emergency department with weakness in her legs and says that she seems to keep tripping over her right foot. She is admitted and after in-depth investigations, she is diagnosed with motor neuron disease. She is given more information about the typical symptoms of this condition.

Which of the following features is typically spared in this condition?

A.Breathing difficulties

B.Emotional lability

C.Ophthalmoplegia

D.Slurred speech

E.Swallowing difficulty

Answer:Ophthalmoplegia

Explanation:

Eye movements are typically spared in motor neurone disease

Important for meLess important

Motor neurone disease (MND), also known as amyotrophic lateral sclerosis (ALS), occurs when motor neurons in the brain and spinal cord degenerate. This typically leads to progressive weakness of limb, respiratory, and bulbar musculature.

The extraocular muscles are seemingly preserved in most MND patients, even until the terminal stage. Notably, eye movements and blinking are usually the last modes of communication available to terminal MND patients. The eye muscles appear to be better equipped to maintain their muscle-nerve contacts and are thereby less affected.

Respiratory muscles can be affected in MND which can lead to breathing difficulties and is usually the most common cause of death in patients with MND.

Upper motor neurone involvement in MND is associated with pseudobulbar affect or emotional lability. This is a troubling symptom that occurs in as many as half of all people living with motor neurone disease. It may involve excessive laughing or crying, or involuntary emotional expression

Slurred speech (dysarthria) is usually an early symptom found in MND and this can later progress to swallowing difficulties.

Question:

A 43-year-old lady presents to the dermatology department with an evolving lesion on her right lower leg. She first noticed the lesion 4 months ago, and it has increased in size and changed in colour during this time. On examination, she has a 2cm by 1.5 cm asymmetrical pigmented lesion, comprised of several shades of brown. She has Fitzpatrick skin type II and uses sunbeds approximately every 4 months. What is this lesion most likely to be?

A.Melanocytic naevus

B.Actinic keratosis

C.Superficial spreading melanoma

D.Lentigo maligna melanoma

E.Basal cell carcinoma

Answer:Superficial spreading melanoma

Explanation:

Superficial spreading melanoma: Most common type of melanoma that has the typical diagnostic features of a changing mole

Important for meLess important

This is a typical history of superficial spreading melanoma, the commonest form of melanoma. 85% of cases are in patients aged over 40 and it's commoner with fairer skin. Superficial spreading melanoma occurs at sites of intermittent, intense sun exposure- which in this lady relates to her use of sunbeds, and is most commonly seen on the legs in females (also 40%). Its typical appearance is a flat patch of pigmented skin which grows slowly, often taking months or years to be recognised. It can be recognised by an ABCDE approach (asymmetry, border irregularity, colour variation, diameter >6mm and evolving) which this lady can be seen to have several features of.

Lentigo maligna melanoma develops slowly, on chronically sun-exposed skin (the face, neck and arms).

Seborrheic keratoses are benign and usually presents on the upper body of older adults. Lesions are usually brown or black with waxy and scaly appearance.

An actinic keratosis is a precancerous lesion which is typically found in older adults and is caused by chronic sun exposure. Hence it is also found on the upper body and appears as a rough, scaly patch.

A basal-cell carcinoma usually appears as a shiny raised area of skin which may have small blood vessels running over it, or may have central ulceration.

(DermNet NZ)

Question:

You are called to see a 25-year-old 10 week pregnant lady in the Emergency Department complaining of abdominal pain and heavy vaginal bleeding. Her observations are normal and she is afebrile, on ultrasound a fetal heart rate is still present and the uterus is the size expected. On examination her cervical os is closed. How would you classify her miscarriage?

A.Inevitable

B.Threatened

C.Complete

D.Incomplete

E.Missed

Answer:Threatened

Explanation:

Classifying miscarriages requires ultrasound scan to determine if there is still a fetal heart beat, the size of the uterus and examination to determine whether the cervical os is opened or closed.

Threatened Miscarriages:

The key here is that the Os is still closed - this means that this isn't an inevitable miscarriage - only 25% of threatened miscarriages will go on to miscarry.

Always remember to rule out an ectopic pregnancy in pregnant women presenting with pain and bleeding.

Question:

A 22-year-old man presents with a 12-month history of progressively worsening back pain. The pain and stiffness are worse in the morning and improve with exercise. You note the presence of a flexural rash with poorly defined areas of erythema, dry skin and lichenification. Observations are normal.

Blood results are as follows:

ESR 84 mm/hr (0-22)

CRP 6 mg/L (0-10)

ANA Negative

RhF Negative

Anti-CCP Negative

What is the most likely diagnosis?

A.Ankylosing spondylitis

B.Psoriatic arthritis

C.Osteoarthritis

D.Reactive arthritis

E.Rheumatoid arthritis

Answer:Ankylosing spondylitis

Explanation:

Inflammatory back pain (e.g. ankylosing spondylitis) typically improves with exercise

Important for meLess important

The nature of the pain (e.g. worse in the morning and improving with exercise) suggests an inflammatory cause. The markedly raised ESR further supports this. This of course has a wide differential including seropositive and seronegative spondyloarthropathies.

Ankylosing spondylitis is the correct answer. This is a classical presentation of a young male with lower back pain and stiffness of insidious onset, which is worse in the morning and moves with exercise.

Psoriatic arthritis is incorrect. The rash present in the clinical case is a classic description of dermatitis rather than psoriasis. Characteristic psoriatic lesions are well-circumscribed erythematous plaques with silvery-white scales, typically distributed over extensor surfaces, especially favouring the elbows and knees, as well as the scalp.

Osteoarthritis is incorrect. This is a common cause of back pain in older patients, however, in a patient of this age, it would be extremely unlikely. Furthermore, the clinical history and raised ESR are more supportive of an inflammatory condition.

Reactive arthritis is incorrect. Reactive arthritis is characterised by the classic triad of arthritis, urethritis and, conjunctivitis. However, a majority of patients do not present with the classic triad. It is also a type of seronegative spondyloarthropathies. It usually self-resolves within 6 months. The duration of symptoms and absence of urethritis or conjunctivitis make this a less likely diagnosis.

Rheumatoid arthritis is incorrect. The negative RhF and anti-CCP make rheumatoid arthritis less likely, but not impossible since seronegative rheumatoid arthritis can occur. Regardless of this, the clinical and epidemiological features are more in keeping with ankylosing spondylitis.

Question:

A 59-year-old man presents with a severe pain deep within his right ear. He feels dizzy and reports that the room 'is spinning'. Clinical examination shows a partial facial nerve palsy on the right side and vesicular lesions on the anterior two-thirds of his tongue. What is the most likely diagnosis?

A.Meniere's disease

B.Herpes zoster ophthalmicus

C.Ramsay Hunt syndrome

D.Acoustic neuroma

E.Trigeminal neuralgia

Answer:Ramsay Hunt syndrome

Explanation:

Whilst vesicular lesions are more classically seen in the external auditory canal and pinna they may also be seen on the anterior 2/3rds of the tongue and the soft palate.

Question:

A 20-year-old student presents complaining of multiple painful ulcers on the shaft of his penis. He tells you he has had a new sexual partner recently but she has not reported any symptoms. He feels generally unwell and had tender enlarged inguinal lymph nodes bilaterally. He denies urethral discharge or dysuria.

What is the most likely diagnosis?

A.Behcets syndrome

B.Herpes simplex

C.Syphilis

D.Lymphogranuloma venereum

E.Donovanosis

Answer:Herpes simplex

Explanation:

Syphilis, Lymphogranuloma venereum (LGV) and donovanosis (granuloma inguinal) all cause painless genital ulcers. Behcets may cause painful genital ulcers but herpes simplex is more likely given the recent change in sexual partner and the lack of other symptoms.

Question:

A mother comes to surgery with her 6-year-old son. During the MMR scare she decided not to have her son immunised. However, due to a recent measles outbreak she asks if he can still receive the MMR vaccine. What is the most appropriate action?

A.Arrange for measles immunoglobulin to be given

B.Cannot vaccinate at this age as live vaccine

C.Give separate measles vaccine

D.Give MMR with repeat dose in 3 months

E.Give MMR with repeat dose in 5 years

Answer:Give MMR with repeat dose in 3 months

Explanation:

The Green Book recommends allowing 3 months between doses to maximise the response rate. A period of 1 month is considered adequate if the child is greater than 10 years of age. In an urgent situation (e.g. an outbreak at the child's school) then a shorter period of 1 month can be used in younger children.

Question:

A couple is being investigated in a fertility clinic due to difficulty with conceiving. They have been engaging in regular unprotected sexual intercourse for 24 months with no success. The woman (aged 25) has been extensively investigated with no structural or hormonal abnormality found.

As part of the investigations of the man (aged 26), semen analysis revealed oligospermia with immotile live sperms. He also reports recurrent chest infections for the past 15 years, a sweat test was performed 10 years ago revealing no abnormality. A testicular examination was normal. A chest examination revealed quiet heart sounds and generalised crepitations and wheeze throughout the lung fields There were no abnormalities on hormonal analysis.

What is the most likely cause of this mans infertility?

A.Cystic fibrosis

B.Kartagener's syndrome

C.Klinefelter's syndrome

D.Orchitis

E.Varicocele

Answer:Kartagener's syndrome

Explanation:

Recurrent chest infections + subfertility - think primary ciliary dyskinesia syndrome (Kartagener's syndrome)

Important for meLess important

Primary ciliary dyskinesia or Kartagener's syndrome are characterised by reduced cilia motility throughout the body. This results in recurrent chest infections and bronchiectasis but also can result in male infertility. When Primary ciliary dyskinesia (PCD) is associated with situs inversus (resulting in the quiet heart sounds), it is known as Kartagener's syndrome, however, this only happens in 50% of PCD. This presentation of symptoms is similar to cystic fibrosis however the negative sweat test ruled out this differential. The normal testicular examination ruled out a varicocele and the normal hormonal analysis ruled out Klinefelter's syndrome.

Question:

A 35-year-old man presents to his GP complaining of stomach pain. He describes a 2 month history of upper abdominal discomfort, bloating, and nausea. He says that this is worse when he is hungry, and is relieved by eating, and so he has subsequently put on weight due to eating more.

Which of the following is the most likely cause of these symptoms?

A.Acute pancreatitis

B.Coeliac disease

C.Duodenal ulcer

D.Gastric ulcer

E.Oesophageal varices

Answer:Duodenal ulcer

Explanation:

Duodenal ulcers characteristically cause pain when hungry, and are relieved by eating

Important for meLess important

This is a typical history of a duodenal ulcer. The key in differentiating gastric and duodenal ulcers is the timing of symptoms- gastric is worse with food, duodenal is worse when hungry. There is a small benefit to differentiating between the two, as gastric ulcers are more likely to be malignant. Pancreatitis will present with sudden onset severe abdominal pain, coeliac disease will present with diarrhoea and other similar symptoms, and varices generally only present when they haemorrhage.

Question:

A 55-year-old woman presents to the emergency department with palpitations, dizziness, and lightheadedness. The team performs an ECG, that shows torsades de pointes.

Which one of the following drugs is most likely to have caused the cardiac abnormality?

A.Citalopram

B.Fluoxetine

C.Gentamicin

D.Sertraline

E.Spironolactone

Answer:Citalopram

Explanation:

Citalopram is the most likely SSRI to lead to QT prolongation and Torsades de pointes

Important for meLess important

Citalopram is a selective serotonin reuptake inhibitor (SSRI) used for the treatment of a major depressive disorder. The Medicines and Healthcare products Regulatory Agency (MHRA) released a warning on the use of citalopram in 2011. It should not be used in patients who already have issues with long-QT syndrome. This is because it is the most likely SSRI to cause QT prolongation and torsades de pointes.

Fluoxetine and sertraline are other SSRIs that can cause a prolonged QT. However, citalopram is more commonly associated with it. For this reason, the MHRA released the warning about citalopram in 2011.

Gentamicin is a bactericidal antibiotic that inhibits the 30S subunit of the bacterial ribosome. It has not been shown to cause QT prolongation or torsades de pointes.

Sertraline is another SSRI and can cause prolonged QT but citalopram is more commonly associated with it.

Spironolactone is an aldosterone antagonist which acts in the cortical collecting duct. It can cause hyperkalemia, whilst torsades de pointes are associated with hypokalemia.

Question:

You are the F2 in general practice. You see a 78-year-old woman who is complaining of changes in the appearance of her legs. On examination, you can see areas of brown on the legs, dry skin, and the calves appear significantly wider at the knee than the ankle.

Which of the following is this woman most at risk of?

A.Acute limb ischaemia

B.Arterial ulcers

C.Neuropathic ulcers

D.Squamous cell cancer

E.Venous ulcers

Answer:Venous ulcers

Explanation:

Brown pigmentation (haemosiderin), lipodermatosclerosis (champagne bottle legs), and eczema are all signs of chronic venous insufficiency, which can lead to venous ulcers

Important for meLess important

This is a typical history of chronic venous insufficiency- brown pigmentation (haemosiderin), lipodermatosclerosis (champagne bottle legs), and eczema. This would mean this woman is at very high risk of venous ulcers, which normally occur above the medial malleolus. Arterial ulcers would generally occur on a background of peripheral arterial disease, and neuropathic ulcers would be more common in diabetics.

Question:

A new 60-year-old patient is seen in the anaesthetic outpatient clinic to undergo a pre-operative assessment prior to a surgical procedure. The patient has several co-morbidities, including cardiac issues which have required recent intervention.

As part of the workup, the patient has an ECG performed which shows a clear left bundle branch block. These changes appear new compared to a recent ECG performed by the patient's GP. The patient is asymptomatic, and the examination is normal.

When can these ECG changes be considered normal?

A.Following electrical cardioversion

B.Following initiation of beta blocker

C.Following mitral valve replacement

D.Following pericardial effusion drainage

E.Under no circumstances

Answer:Under no circumstances

Explanation:

New LBBB is always pathological and never normal

Important for meLess important

Left bundle branch block (LBBB) is a cardiac conduction abnormality due to slow or absent conduction through the left bundle branch resulting in the left ventricle taking longer than normal to fully depolarise. It is seen on ECG as wide QRS complexes in the precordial leads with the complex normal entirely negative (QS morphology) in lead V1 and predominantly positive with a slow upstroke to the R-wave peak in the lateral leads. New LBBB is always pathological and therefore under no circumstances can be it considered normal. It may be a result of several conditions including myocardial infarction, hypertension, cardiomyopathy etc and as such the identification of new LBBB warrants further investigation.

Electric cardioversion is a procedure aimed at converting an abnormally fast cardiac rhythm or cardiac arrhythmia back to a normal sinus rhythm. Synchronised cardioversion can be used in an acute or elective setting where a set amount of electricity is delivered to restore the normal electrical conduction system of the heart. It is commonly used for conditions such as fast atrial fibrillation or ventricular and supraventricular tachycardias. A patient’s ECG following electric cardioversion should be sinus rhythm; pathological rhythms can indicate a failure of the procedure or cardiac damage/injury potential sustained as a result of the preceding arrhythmia; new LBBB following electric cardioversion is an indication of pathology and would require further investigation.

Beta blockers are commenced mainly for blood pressure or arrhythmia control (e.g. in atrial fibrillation). As such, they can result in a slowing of a patient’s cardiac rate and potentially the conversion of an arrhythmia to a sinus rhythm. Beta-blockers however should not affect the QRS complexes and therefore do not produce LBBB unless they result in some form of adverse effect.

Mitral valve replacement (MVR) is the replacement of a diseased mitral valve, either due to regurgitation or stenosis, with a mechanical or tissue valve. Post MVR both significant (e.g. atrial fibrillation) and non-significant (e.g. decrease P wave duration, amplitude and PR interval) cardiac rate and rhythm changes can occur however changes in the QRS duration or axis are not associated with the procedure. LBBB is not associated with the procedure and should not be considered normal.

Pericardial effusion is the collection of fluid within the pericardial sac and can be due to several conditions including infection, inflammation or autoimmune. Although normally diagnosis via imaging (e.g. echo) there are common ECG changes associated with the condition including low QRS voltage, tachycardia and electrical alternans which are consecutive, normally-conducted QRS complexes that alternate in height. Following pericardial effusion drainage these ECG changes should improve/resolve. LBBB is not associated with pericardial effusion or its management and therefore should not be considered normal.

Question:

A 13-year-old girl develops purpura on her lower limbs and buttocks associated with microscopic haematuria. A diagnosis of Henoch-Schonlein purpura is made. Her urea and electrolytes show mild renal impairment that is still present 4 weeks later, although she does not require any specific therapy. What is the most likely renal outcome?

A.Hypertension within 20 years

B.Persistent proteinuria

C.End stage renal failure

D.Full renal recovery

E.Frequent relapses

Answer:Full renal recovery

Explanation:

Question:

A 33-year-old man presents complaining of visual disturbance. Examination reveals a bitemporal hemianopia with predominately the upper quadrants being affected. What is the most likely lesion?

A.Craniopharyngioma

B.Brainstem lesion

C.Pituitary macroadenoma

D.Frontal lobe lesion

E.Right occipital lesion

Answer:Pituitary macroadenoma

Explanation:

Bitemporal hemianopia

lesion of optic chiasm

upper quadrant defect > lower quadrant defect = inferior chiasmal compression, commonly a pituitary tumour

lower quadrant defect > upper quadrant defect = superior chiasmal compression, commonly a craniopharyngioma

Important for meLess important

An upper quadrant defect implies inferior chiasmal compression making a pituitary macroadenoma the most likely diagnosis

Question:

A 36-year-old female starts Cerazette (desogestrel) on day 7 of her cycle. How long will it take before it can be relied upon as a method of contraception?

A.Immediately

B.2 days

C.5 days

D.7 days

E.Until first day of next period

Answer:2 days

Explanation:

Contraceptives - time until effective (if not first day period):

instant: IUD

2 days: POP

7 days: COC, injection, implant, IUS

Important for meLess important

Question:

A 67-year-old man presents to his GP with intermittent claudication. He is referred to the vascular team and a diagnosis of peripheral arterial disease is made. Which of the following may be offered as treatment to this man?

A.Aspirin

B.Exercise training

C.Carotid endarterectomy

D.Digoxin

E.Warfarin

Answer:Exercise training

Explanation:

Exercise training has been shown to be beneficial in peripheral arterial disease

Important for meLess important

This question is asking about the treatment of peripheral arterial disease. Of the options above, the only treatment offered to patients with peripheral arterial disease is exercise training. Patients are asked to exercise to the point of maximal pain tolerance and then rest, to try and increase collateral circulation.

Aspirin is no longer offered first line to patients with peripheral arterial disease. Instead, clopidogrel is used.

Carotid endarterectomy, digoxin and warfarin are not used in the treatment of peripheral arterial disease.

Question:

A 30-year-old woman with bipolar disorder presents to her GP with increased urinary frequency for the last 2 weeks. There is no associated pain or weight loss. The GP performs a random capillary glucose which is 7mmol/L. Which of the following is the most likely cause of this woman's symptoms?

A.Use of sodium valproate

B.Use of lithium

C.Type 1 diabetes mellitus

D.Urinary tract infection

E.Idiopathic diabetes insipidus

Answer:Use of lithium

Explanation:

Lithium is a cause of polyuria

Important for meLess important

In this case, a woman with bipolar disorder has come to the GP with 2 weeks of polyuria. The most likely cause is the use of lithium (a drug commonly used in bipolar disorder) which often causes polyuria.

While patients with bipolar disorder can also take sodium valproate there is no link between this and polyuria

Type 1 diabetes could be another cause for polyuria, however, she is on the higher end of the suspected age group for this condition. She also has no features of weight loss and no mention of any polydipsia. Her capillary glucose levels were completely normal.

A urinary tract infection can also cause increased frequency of urination, however, these are normally painful and last less than 2 weeks.

Idiopathic diabetes insipidus is a cause of thirst, however, it is much rarer than lithium use in a bipolar patient and so would not be the most likely cause in this patient

Question:

A 27-year-old woman who is 40-weeks pregnant arrives in the labour suite with irregular contractions. Earlier today she noticed a mucous plug in her pants at home.

On examination, she is breathing hard and obviously in some discomfort. The cardiotocography is normal and progressing well. On vaginal examination, her cervix is estimated to be 2cm dilated.

What stage of labour is she in?

A.3rd stage

B.Active 1st stage

C.Active 2nd stage

D.Latent 1st stage

E.Latent 2nd stage

Answer:Latent 1st stage

Explanation:

1st stage of labour

latent phase = 0-3 cm dilation

active phase = 3-10 cm dilation

Important for meLess important

Latent 1st stage is the correct option because she is almost certainly in labour with her cervix just beginning to ripen and dilate. This is the latent 1st stage because the cervix is between 0 and 3cm dilated.

Active 1st stage is incorrect, because the cervix is between 3-10cm in this stage and the contraction starts to become more regular.

Active 2nd stage is an incorrect answer because this is not a descriptive stage of labour, due to their being only a general 2nd stage which culminates with the expulsion of the foetus.

Latent 2nd stage is incorrect as this is not a stage which exists. The 2nd stage is described as the process of the infant being delivered.

3rd stage is incorrect as this is the stage when the placenta is expelled.

Question:

A 65-year-old man is admitted with central chest pain which began around five hours ago. His past medical history includes ischaemic heart disease (acute coronary syndrome two years ago), hypertension and gastro-oesophageal reflux disease. The pain is described as severe and does not radiate. His pulse is 110/min, blood pressure 150/94 mmHg, respiratory rate 18/min, temperature 37.1ºC. The troponin I < 0.05 µg/L and an ECG shows no diagnostic changes. A CT chest (with contrast) is ordered:

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What is the most likely diagnosis?

A.Acute coronary syndrome

B.Pulmonary embolism

C.Cardiac tamponade

D.Boerhaave syndrome

E.Aortic dissection

Answer:Aortic dissection

Explanation:

An intraluminal tear has formed a 'flap' that can be clearly seen in the ascending aorta. This is a Stanford type A dissection.

Hypertension is common in patients with aortic dissection and is often due to a catecholamine surge.

Question:

A 64-year-old asthmatic lady presents to the emergency department with acute onset shortness of breath. On examination, she has saturations of 91% on air however her chest is clear with no extra breath sounds. She is found to be tachycardic and tachypnoeic but her blood pressure is normal. Chest expansion is even on both sides. She has a 40 pack year history of smoking and drinks about 25 units of alcohol a week.

Given the clinical presentation, which of the following could be a cause of this woman's symptoms?

A.Chronic obstructive pulmonary disease (COPD) exacerbation

B.Asthma attack

C.Pulmonary embolism

D.Panic attack

E.Pneumothorax

Answer:Pulmonary embolism

Explanation:

Breathing problems with clear chest, think pulmonary embolism

Important for meLess important

This question is asking about the differentials for acute breathlessness. This asthmatic smoker has presented with acute breathlessness with low oxygen saturation, a high respiratory rate and a high heart rate. However, her chest sounds are normal and thus the most likely diagnosis is a pulmonary embolism. The normal breath sounds help us to rule out many of the possible differentials.

While this ladies 40 pack year history puts her at risk of COPD and thus a COPD exacerbation, however, she would present with a wheeze and crackles on auscultation is this was the case

This lady is a known asthmatic however if an asthma attack was the cause of her symptoms you would expect a wheeze to be heard on auscultation.

Smoking is also a risk factor for pneumothorax and thus she is at risk of this. However, you would expect absent breath sounds on the side of the pneumothorax and reduced chest expansion on the same side.

While a panic attack would present similarly with tachycardia and tachypnoea you would not expect oxygen saturation to be this low. In fact, patients are often very well oxygenated due to their increased respiratory rate,

Question:

A 26-year-old man attends the emergency department with sudden onset of vertigo. He also reports feeling unsteady on his feet, and you notice that he has an ataxic gait when mobilising from the wheelchair to the bed. He has vomited several times since the onset of the symptoms in the morning and reports that the only relief is lying still. He reports no past medical history but claims to have felt worn down last week with muscle ache and a temperature. On examination, he has no focal neurological deficit and no hearing loss. ENT examination is unremarkable. Head Impulse, Nystagmus, Test of Skew (HINTS) examination shows left-beating nystagmus.

Considering his likely diagnosis, what is the most appropriate management?

A.Alteplase

B.Antibiotics (based on culture sensitivity)

C.High-dose steroids

D.Myringotomy

E.Vestibular rehabilitation

Answer:Vestibular rehabilitation

Explanation:

Vestibular rehabilitation exercises are the preferred treatment for chronic symptoms in vestibular neuronitis

Important for meLess important

This patient is presenting with typical symptoms of vestibular neuronitis which is a viral infection of the vestibular portion of the eighth cranial nerve (CN VIII). It is characterised by acute, severe vertigo, nausea, vomiting and ataxia. It can be differentiated from labyrinthitis due to the lack of hearing loss (as labyrinthitis is associated with hearing loss). Symptoms are usually worst on the first day and resolve over several hours to days. The main treatment is anti-emetics and vestibular rehabilitation. Vestibular rehabilitation is a series of exercises that aim to:

Enhance gaze stability.

Enhance postural stability.

Improve vertigo symptoms and allow performance of activities of daily living.

Alteplase is used in the management of an acute, ischaemic stroke within 4.5 hours of symptom onset (and haemorrhagic stroke has been excluded). This vignette demonstrates a patient with a peripheral cause of vertigo (rather than central - such as in a posterior stroke) and there is no other neurological deficit. The patient's age and uni-directional nystagmus on examination should further support the diagnosis of vestibular neuronitis and guide the student away from this answer.

Antibiotics are not typically used in the management of vestibular neuronitis. This is due to most cases being associated with recent viral infections. If there is a suspicion of bacterial infection, antibiotics would be appropriate - however, this vignette shows a patient whose infective symptoms resolved prior to the onset of dizziness.

High-dose steroids form part of the management of many pathologies, an example of an ENT pathology in which they are used is refractory dizziness in Meniere's disease. There is no indication in current guidelines for the use of steroids in vestibular neuronitis and, as such, should not be used as first-line management for these patients.

Myringotomy is the surgical management used for labyrinthitis caused by otitis media. This allows evacuation of the effusion. Any effusion drained should be sent for microscopy, culture, and sensitivity. Vestibular neuronitis (characterised by the lack of hearing loss) is not typically caused by otitis media and this is further not indicated due to normal ENT examination depicted in the vignette.

Question:

A 56-year-old woman presents with a thickened toe nail of her right hallux. She states that she has been unable to trim it and that it is causing her pain when walking in shoes. Nail clippings are taken for fungal microscopy and culture. Aside from this she is fit and well, with no known drug allergies.

She is found to have a dermatophyte nail infection.

What is the most appropriate treatment?

A.Advice on self-care management

B.Oral fluconazole

C.Oral itraconazole

D.Oral terbinafine

E.Topical amorolfine

Answer:Oral terbinafine

Explanation:

Dermatophyte nail infections - use oral terbinafine

Important for meLess important

Symptomatic dermatophyte nail infections should be treated with oral terbinafine, if there are no contraindications.

Fluconazole and itraconazole are used in the treatment of Candida infections.

Topical amorolfine can be used in patients who are asymptomatic or if they are not experiencing pain or significant psychological distress due to cosmetic appearance of the nail.

Question:

A 43-year-old man, currently an inpatient on a surgical ward for acute pancreatitis, develops episodic epistaxis. Blood tests are taken which demonstrate the following:

Platelets 52 \* 109/L (150 - 400)

Prothrombin time (PT) 23 secs (10-14 secs)

Activated partial thromboplastin time (APTT) 46 secs (25-35 secs)

Fibrinogen 0.8 g/L (2 - 4)

D-Dimer 1203 ng/mL (< 400)

Given the likely diagnosis, what would be expected on blood film?

A.Elliptocytes

B.Heinz bodies

C.Howell–Jolly bodies

D.Schistocytes

E.Spherocytes

Answer:Schistocytes

Explanation:

DIC is associated with schistocytes due to microangiopathic haemolytic anaemia

Important for meLess important

The diagnosis here is disseminated intravascular coagulation (DIC), a procoagulant state due to the activation of coagulant pathways. It can be triggered by a number of factors - in this instance, an acutely unwell patient. The blood tests show a depletion of platelets and coagulation factors, characteristic of DIC. The condition is associated with schistocytes due to microangiopathic haemolytic anaemia.

Elliptocytes would not typically be expected due to DIC. These are erythrocytes that appear rod- or pencil-shaped. These are seen in iron deficiency, thalassaemia and a number of other conditions.

Heinz bodies are inclusions within red blood cells due to a number of conditions, including alpha-thalassaemia and glucose-6-phosphate dehydrogenase deficiency. They would not be expected in DIC.

Howell-Jolly bodies are inclusions within red blood cells, characteristic of decreased splenic function, such as post-splenectomy. They would not be expected in DIC either.

Spherocytes are erythrocytes that are sphere-shaped rather than biconcave. These would not be expected in DIC, and are seen in hereditary spherocytosis.

Question:

A 30-year-old woman with a background of Wilson's disease presented with weakness, constipation and lethargy. Clinical examination revealed hyporeflexia. Her X-ray showed signs of osteomalacia. Her blood result showed:

K+ 3.1 mmol/L (3.5 - 5.0)

Calcium 1.8 mmol/L (2.1-2.6)

Phosphate 0.5 mmol/L (0.8-1.4)

Vitamin D 12ng/mL (20-50)

What is the most likely diagnosis?

A.Multiple myeloma

B.Type 1 renal tubular acidosis

C.Type 2 renal tubular acidosis

D.Type 3 renal tubular acidosis

E.Type 4 renal tubular acidosis

Answer:Type 2 renal tubular acidosis

Explanation:

Hypokalaemia, osteomalacia - type 2 renal tubular acidosis

Important for meLess important

The correct answer is type 2 renal tubular acidosis. This patient has Wilson's disease, which is a cause of type 2 renal tubular acidosis. Type 2 renal tubular acidosis happens when there is a problem in the proximal tubules. In Wilson's disease, copper deposits in the proximal tubules and causes damage to the tubules. It can cause hypokalaemia, which leads to symptoms she is experiencing- weakness, constipation, lethargy and hyporeflexia. Osteomalacia is a complication of this type of renal tubular acidosis.

Multiple myeloma is rare in this age group. It causes a high calcium level, instead of a low calcium level. Other features include anaemia, renal failure and bone pain.

Type 1 renal tubular acidosis occurs due to a problem in the distal tubules. It is characterised by the inability to generate acidic urine (secrete H+) in the distal tubules and hypokalaemia. Its complications include nephrocalcinosis and renal stones. It is not known to be related to Wilson's disease.

Type 3 renal tubular acidosis is extremely rare. It is caused by carbonic anhydrase II deficiency and also results in hypokalaemia.

Type 4 renal tubular acidosis is the only type that causes hyperkalaemia. It is related to diabetes and hypoaldosteronism.

Question:

A 58-year-old man is reviewed on the surgical wards 7 days after having an anterior resection for a rectal carcinoma. He developed a cough 2 days ago and had a chest x-ray which showed consolidation of the right lower lobe. A diagnosis of post-op pneumonia was made and he was started on broad spectrum intravenous antibiotics.

Over the past 24 hours he has become progressively more short-of-breath. On examination his respiratory rate is 30/min, heart rate 102/min, temperature of 37.2ºC and oxygen saturations of 92% on an oxygen concentration of 35%. Bibasal crackles are noted on lung auscultation. An ECG show sinus rhythm and no acute changes. A chest x-ray shows bilateral infiltrates in both bases.

What is the most likely diagnosis?

A.Bilateral lobar pneumonia

B.Heart failure secondary to a myocardial infarction

C.Acute respiratory distress syndrome

D.Atelectasis

E.Massive pulmonary embolism

Answer:Acute respiratory distress syndrome

Explanation:

This patient has a number of features in keeping with a diagnosis of acute respiratory distress syndrome:

acute onset within the past day, on the background of a known risk factor (pneumonia)

bilateral pulmonary oedema (crackles, x-ray changes)

hypoxia despite oxygen therapy

The absence of chest pain and a normal ECG go against a diagnosis of myocardial infarction.

Question:

A 35-week neonate is admitted to the neonatal intensive care unit. They were born via emergency Caesarean section to a 16-year-old mother in preterm labour. The mother was a late booker to antenatal health services and her antenatal history including significant tobacco and alcohol use. On examination, the baby has intestinal loops protruding through a hole in the abdomen to the left of the umbilicus. What is the most likely diagnosis?

A.Gastroschisis

B.Omphalocele

C.Foetal alcohol syndrome

D.Anencephaly

E.Congenital diaphragmatic hernia

Answer:Gastroschisis

Explanation:

Gastroschisis is associated with socioeconomic deprivation (maternal age <20, maternal alcohol/tobacco use)

Important for meLess important

Gastroschisis and omphalocele present similarly, but gastroschisis refers to a defect lateral to the umbilicus whereas omphalocele refers to a defect in the umbilicus itself.

Foetal alcohol syndrome presents with small head, flattened philtrum and thin upper lip.

Anencephaly is a neural tube defect causing absence of brain, skull and scalp.

Congenital diaphragmatic hernia refers to herniation of abdominal viscera into the thoracic cavity.

Question:

A 63-year-old woman attends your GP surgery at the request of the practice nurse who found her blood pressure to be 154/103 mmHg last week. Her blood pressure today is 146/98 mmHg. Her medications include atorvastatin, amlodipine and ramipril. She is compliant with all her medications.

What additional medication, if any, would you prescribe?

A.Bendroflumethiazide

B.Doxazosin

C.Indapamide

D.No additional medication needed

E.Spironolactone

Answer:Indapamide

Explanation:

Poorly controlled hypertension, already taking an ACE inhibitor and a calcium channel blocker - add a thiazide-like diuretic

Important for meLess important

Indapamide is the correct answer. It is a thiazide-like diuretic. This is the recommended next step, as per NICE guidelines, if blood pressure remains uncontrolled despite the patient taking an ACE inhibitor and a calcium channel blocker.

Doxazosin is an alpha-blocker- this is not the correct answer as prescribing this would skip step three which is a thiazide-like diuretic. It might be considered once the patient was on a thiazide-like diuretic as step four.

Bendroflumethiazide, a thiazide diuretic, is incorrect as it is not now the preferred choice as per NICE CKS guideline. Bendroflumethiazide can be used if the patient is already on it and the blood pressure is well controlled, otherwise the preferred options would be indapamide or other thiazide-like diuretics such as chlortalidone.

No additional medication needed is not the correct answer because the patient's blood pressure remains high, so it is appropriate to add another medication.

Spironolactone is not the correct answer because this would be considered in step 4 of the NICE guidelines for prescribing hypertension. In this case, the woman is already taking steps 1 and 2 (ACE inhibitor and calcium channel blocker) so the next correct step is step 3.

Question:

A 21-year-old male presents to the general practitioner with a dry cough and fever for 3 weeks. He has no known past medical history, no past drug history, or allergies. He feels lethargic but denies any other symptoms (including weight loss). Upon further questioning, he reports that his sister (age 17) was diagnosed with lung tuberculosis last year but is not compliant with treatment. A chest x-ray shows a right, upper apical cavitating lesion and he returns a positive sputum culture test for tuberculosis.

What further testing should be offered to this patient?

A.Abdominal x-ray

B.Anti-TTG antibodies

C.HIV test

D.Lumbar puncture

E.Mantoux test

Answer:HIV test

Explanation:

A HIV test should be offered to all patients with TB

Important for meLess important

This patient has symptoms suggestive of tuberculosis (TB) - a dry cough and fever. He has x-ray changes that are supportive of this (a cavitating lesion) and positive sputum culture. Another method of assessment for TB is with quantiferon gold test (a blood test that assesses for TB via ELISA-based interferon-gamma release assay). It is highly likely that this patient has active TB (particularly as there is a family history of TB too). All patients with TB should be offered an HIV test as TB is classified as one of the 'AIDS-defining' illnesses seen in the UK and Europe and will guide management.

An abdominal x-ray would be a useful diagnostic test in a patient with a suspected abdominal pathology, however, this patient has respiratory symptoms and would not provide any further clinical information that would be beneficial at this time.

Anti-TTG antibodies would be useful to assess if a person presented with symptoms consistent with coeliac disease (such as bloating, diarrhoea, and weight loss).

A lumbar puncture would be indicated if this patient had neurological symptoms.

A Mantoux skin TB test is unnecessary in a patient with a positive sputum culture. It is important to consider which TB test should be performed in patients - sputum culture is a common diagnostic method but quantiferon gold tests may be preferred in patients who have had the BCG vaccination or may struggle to return for follow-up to assess for a skin wheal with the Mantoux test.

Question:

A 64-year-old woman is admitted to the medical team for stroke management. She presented this morning with vertigo, vomiting and right-sided facial paralysis. She has a past medical history of anxiety, hypertension, and hypercholesterolaemia.

On examination, she has an ataxic gait. There is right-sided facial weakness and reduced hearing in the right ear. She is noted to have a loss of pain sensation over the right forehead and maxilla. Peripheral examination shows loss of temperature and pain sensation over the left lower limb.

Considering her presentation, where is the infarct most likely to be?

A.Anterior cerebral artery

B.Anterior inferior cerebellar artery

C.Basilar artery

D.Posterior cerebral artery

E.Posterior inferior cerebellar artery

Answer:Anterior inferior cerebellar artery

Explanation:

Sudden onset vertigo and vomiting, ipsilateral facial paralysis and deafness - anterior inferior cerebellar artery

Important for meLess important

This patient is presenting with symptoms consistent with anterior inferior cerebellar artery stroke. This is also known as 'lateral pontine syndrome.' Patients will present with ipsilateral facial weakness and deafness, loss of temperature and pain sensation over the ipsilateral face and contralateral trunk and limbs. There will also be an ataxic gait. Patients may also appear to lean towards the side of the lesion and feel significantly dizzy.

An anterior cerebral artery infarct presents with lower limb contralateral hemiparesis. There are not usually symptoms of dizziness or cerebellar signs.

Basilar artery strokes are often devastating and can lead to locked-in syndrome. This is due to their large territorial supply to the cerebellum, thalamus, occipital lobe, and brainstem.

Posterior cerebral artery stroke patients present with contralateral homonymous hemianopia with macular sparing (due to the collateral vascular supply to the brain region supplying the macula) and visual agnosia. They do not experience cerebellar signs or limb weakness usually.

Posterior inferior cerebellar artery strokes (or 'lateral medullary syndrome') present in a similar manner to anterior inferior cerebellar artery strokes with loss of temperature and pain sensation to the ipsilateral face and contralateral trunk and limbs, alongside slurring of the speech and ataxic gait. However, there is no facial paralysis or deafness. This is due to the lesion affecting the medulla rather than also affecting the pons.

Question:

A 14-year-old boy is brought to surgery by his mother. For the past two weeks he has been complaining of pain in his distal right thigh, which is made worse when he runs. On examination he is noted to be obese and have a full range of movement in the right knee. He is able to flex his right hip fully but internal rotation is painful. What is the most likely diagnosis?

A.Transient synovitis

B.Perthes disease

C.Trochanteric bursitis

D.Medial collateral ligament strain

E.Slipped upper femoral epiphysis

Answer:Slipped upper femoral epiphysis

Explanation:

Slipped upper femoral epiphysis - typically an overweight adolescent boy with knee / hip problems

Important for meLess important

This is a classic presentation of slipped upper femoral epiphysis. The child's obesity is a strong clue.

Question:

A 22-year-old man consults you as he and his housemate have been feeling generally unwell for the past few weeks. Which one of the following is the most common feature of carbon monoxide poisoning?

A.Hyperpyrexia

B.Nausea

C.Cherry red skin

D.Confusion

E.Headache

Answer:Headache

Explanation:

Carbon monoxide poisoning - most common feature = headache

Important for meLess important

Cherry red skin is a sign of severe toxicity and is usually seen post-mortem

Question:

A 74-year-old female presents to the emergency department after suffering a fall in which she hit her head 2 hours ago. A collateral history taken from her partner suggests the patient suffered reduced consciousness shortly after sustaining the injury, but her Glasgow Coma Scale (GCS) score on arrival is 15. Thirty minutes after arrival, the patient's condition deteriorates, her GCS drops to 12, she vomits and her right-eye becomes fixed in an abducted, depressed position.

Given the likely diagnosis, what other findings are likely to be seen on examining this patient's eyes?

A.No ptosis with a unilaterally dilated pupil on the affected side and a relative afferent pupillary defect

B.Bilateral ptosis with bilaterally constricted pupils, which are difficult to assess with light

C.Right-sided ptosis and pupil constriction with an intact light reflex

D.Right-sided ptosis, pupil dilation and an absent light reflex with intact consensual constriction

E.Right-sided ptosis, pupil dilation and an intact light reflex

Answer:Right-sided ptosis, pupil dilation and an absent light reflex with intact consensual constriction

Explanation:

Raised ICP can cause a third nerve palsy due to herniation

Important for meLess important

This patient has likely suffered a third cranial nerve palsy, secondary to raised intracranial pressure from an acute subdural haematoma. This diagnosis is suggested by the history of head trauma, a lucid interval before decreasing consciousness and symptoms of raised intracranial pressure (vomiting, 'down and out' position of the right eye). This nerve supplies the ocular muscles except for the superior oblique and lateral rectus. In a third nerve palsy, these muscles are unopposed and give a classical 'down and out' position of the eye (abducted, depressed right eye). The third nerve also innervates levator palpebrae superioris (lifts the upper eyelid), meaning a third nerve palsy will produce ptosis. A further function of the third nerve is to carry the efferent fibres controlling the light reflex, a palsy will therefore result in a dilated pupil which will be unable to constrict in response to light on the affected side, but as the second cranial nerve carries the afferent fibres for this reflex and the patients left-sided third nerve is intact, a consensual response will still be present. Please note, this patient would require urgent evaluation for decompressive neurosurgery.

'No ptosis with a unilaterally dilated pupil on the affected side and a relative afferent pupillary defect' is incorrect as this would classically result from an optic nerve injury. This is also less likely in this patient given the signs and symptoms suggestive of raised intracranial pressure (ICP).

'Bilateral ptosis with bilaterally constricted pupils, which are difficult to assess with light' is incorrect as this is more commonly observed in opiate overdose. This is unlikely in this patient as there is no history of opioid use and there are also signs of raised ICP.

'Right-sided ptosis, pupil constriction and an intact light reflex' is incorrect. This is characteristic of horners syndrome, a collection of symptoms that result from obstruction of the sympathetic trunk on the ipsilateral side. Common symptoms include ptosis, pupil constriction, and anhidrosis (central lesions only).

'Right-sided ptosis, pupil dilation and an intact light reflex' is incorrect. Such a combination of signs is unlikely to result from any pathological condition.

Question:

A 55-year-old female presents to her general practitioner with new-onset symptoms. She complains of flushing, severe insomnia and headaches. Her past medical history includes asthma and a spontaneous deep vein thrombosis. The symptoms are interfering with her daily life. She has not had her period for 14 months. The doctor explains to her the benefit and the risks of hormonal replacement therapy and they decide to initiate it.

Which one of the following regimens is the most appropriate to prescribe to this patient?

A.Oral estradiol

B.Oral estradiol and levonorgestrel

C.Oral estradiol and levonorgestrel-releasing intrauterine system

D.Oral levonorgestrel

E.Transdermal estradiol and levonorgestrel

Answer:Transdermal estradiol and levonorgestrel

Explanation:

Transdermal HRT should be used in women at risk of venous thromboembolism

Important for meLess important

The correct answer is to prescribe transdermal estradiol and levonorgestrel. This patient presents with some classical features of menopause such as flushing, severe insomnia and headaches. In these cases where the symptoms of menopause become severe, the patient should be offered hormonal replacement therapy (HRT), taking into account the pros and cons of prescribing it.

The patient has a past medical history of deep vein thrombosis, which is an event that could be triggered by the usage of HRT since it has an oestrogenic component. It has been shown by multiple studies that transdermal HRT should be used in women at risk of venous thromboembolism, as it does not increase the risk of developing a clot compared to the oral options.

Oral estradiol only should only be prescribed as HRT to women who don't have a uterus. This is due to the fact that oestrogen causes endometrial hyperplasia, and without the progesterone's input to shred it monthly, it can lead to the development of malignancy.

Oral estradiol and levonorgestrel are one of the most common oestrogen and progesterone combination for HRT. But in this case the patient has a past medical history of deep vein thrombosis, making the choice of transdermal delivery more appropriate as it does not increase the risk of developing a new one compared to oral options.

Oral estradiol and the levonorgestrel-releasing intrauterine system is another option that can be prescribed as HRT if the patient prefers to keep a coil in situ. But in this case, the patient has a past medical history of deep vein thrombosis, making the choice of transdermal delivery more appropriate as it does not increase the risk of developing a new one compared to oral and intrauterine options.

Oral levonorgestrel only is not used as HRT as the troublesome symptoms of menopause are due to the lack of oestrogen, not progesterone. Hence, replacing the progesterone alone would not solve the complaint.

Question:

A 29-year-old woman with a past history of hypothyroidism presents to the surgery complaining of weakness, particularly of her arms, for the past four months. She has also developed double vision towards the end of the day, despite having a recent normal examination at the opticians. What is the most likely diagnosis?

A.LambertEaton myasthenic syndrome

B.Polymyositis

C.Polymyalgia rheumatica

D.Multiple sclerosis

E.Myasthenia gravis

Answer:Myasthenia gravis

Explanation:

Question:

A seventeen-year-old patient with advanced lymphoma presents to the London Royal Free Hospital following ingestion of seventy 500mg tablets of paracetamol. The patient was likely in the last few months of life and did not wish to die slowly. When the patient is bought in you note that an advanced care directive is stapled to his shirt. The statement reads that in the event of accidental or deliberate overdose the patient would not like to receive any intervention that may reverse such overdose. It goes on to acknowledge that such decision may shorten his life expectancy and it is signed and dated by the patient and a witness. Is the advanced care directive applicable in this instance?

A.Yes - it is signed by both the patient and a witness, it also acknowledges the risk of lessened life expectancy and is therefore it is valid

B.No - it is not written on headed paper

C.Yes - it is specific to the situation

D.No - it may have been signed but was not notarised by a person of sufficient authority

E.No - people under the age of 18 cannot sign advanced care directives

Answer:No - people under the age of 18 cannot sign advanced care directives

Explanation:

The advanced directive is entirely valid other than for two factors. Firstly, it is evident that when the directive was written the patient was not of sound mind as he then went on to attempt suicide and this is grounds to ignore it. Secondly, the patient is in England and under 18 and is therefore not legally binding. In Scotland this age is 16 and so the name of the hospital is an important part of the question. The following GMC guidance is published to explain this http://www.gmc-uk.org/guidance/ethicalguidance/endoflifeadvancerefusalsvalidity.asp

Question:

A 70-year-old man complains of reduced vision. Fundoscopy reveals the following:

What is the most likely diagnosis?

A.Primary open angle glaucoma

B.Hypertensive retinopathy

C.Optic neuritis

D.Age-related macular degeneration

E.Diabetic retinopathy with laser scars

Answer:Age-related macular degeneration

Explanation:

Question:

A 36-year-old primigravida attends an antenatal clinic appointment at 17+0 weeks gestation for amniocentesis following a high-risk combined screening test. The results of this test show trisomy 21.

What is a late complication of this disease?

A.Alzheimer's disease

B.Chronic myeloid leukaemia

C.Hirschsprung disease

D.Hyperthyroidism

E.Tetralogy of Fallot

Answer:Alzheimer's disease

Explanation:

Down syndrome - Alzheimer's disease

Important for meLess important

The correct answer is Alzheimer's disease (AD). This is a late complication of Down's syndrome. People with Down's syndrome are born with an extra copy of chromosome 21, which carries a gene that produces a specific protein called amyloid precursor protein (APP). Too much APP protein leads to a buildup of protein clumps called beta-amyloid plaques in the brain. By the age of 40, most people with Down's syndrome have these plaques, along with other protein deposits, called tau tangles, that further increase the risk of developing AD.

Acute lymphoblastic leukaemia(ALL) is a late complication of Down's syndrome - making chronic myeloid leukaemia incorrect. ALL may present as repeated infections, unusual and frequent bleeding, night sweats, bone and joint pain, or easily bruised skin.

Hirschsprung disease is a birth defect where nerve cells are missing from parts of the large intestine, resulting in severe constipation and sometimes intestinal obstruction. It is more common in babies with Down's syndrome. However, this would be classed as an early complication.

Similarly, hypothyroidism is a late complication of Down's syndrome, usually caused by an autoimmune reaction - making hyperthyroidism incorrect. Hyperthyroidism occurs very rarely.

Tetralogy of Fallot is a potential complication of Down's syndrome, however it would be present from birth, so is not a late complication. This heart defect involves four features: pulmonary stenosis, a ventricular septal defect, right ventricular hypertrophy, and an overriding aorta.

Question:

A 65-year-old woman presents with weakness of the thighs and shoulders leading to difficulty climbing stairs and lifting objects. She has also noticed a purple-coloured rash, most pronounced on her face and affecting the eyelids. On examination, she has itchy and painful papules over the metacarpophalangeal (MCP) joints. She is subsequently diagnosed with dermatomyositis.

What investigation will form part of the next steps in management?

A.CT chest/abdomen/pelvis

B.Chest x-ray

C.MRI brain

D.PET scan

E.Ultrasound MCP joints

Answer:CT chest/abdomen/pelvis

Explanation:

Dermatomyositis is commonly a paraneoplastic phenomenon

Important for meLess important

1 in 4 adults with dermatomyositis has an underlying malignancy driving the disease. It is therefore important to fully investigate these patients for malignancy. The easiest and most reliable method of doing this is a CT chest/abdomen/pelvis as it is quick to obtain and has a high specificity for picking up any underlying malignancy.

Chest x-ray may pick up an underlying lung malignancy but would miss tumours in the abdomen or pelvis and is not as accurate as a CT.

MRI brain is unlikely to be of use in this patient as an intracerebral pathology is unlikely to cause dermatomyositis. Dermatomyositis is most commonly associated with lung cancer, breast cancer and ovarian cancer.

A PET scan may be performed at a later date if a malignancy is detected on an initial CT scan however these scans are typically used for staging the tumour and looking for metastases and so would not form part of the initial work-up.

An ultrasound of the MCP joints is unlikely to be of use in this patient as the diagnosis of dermatomyositis has already been confirmed and so evaluation of the pathognomonic Gottron papules is not necessary. Furthermore, ultrasound would be a poor method of investigating these phenomena - if diagnostic uncertainty remains a biopsy can be undertaken.

Question:

A 55-year-old man with chest pain collapsed in the emergency department while waiting to be seen. The triage nurse assessed him and could not feel the carotid pulse, so started chest compressions immediately. After moving to the resuscitation bay, the patient was connected to the defibrillator using adult pads. Once the monitor was turned on, chest compressions were interrupted for rhythm analysis. The monitor showed wide complex polymorphic ventricular tachycardia at 150 bpm. There was no palpable carotid pulse.

What is the immediate course of action to resuscitate this patient?

A.Administer adenosine 6mg intravenously

B.Administer amiodarone 300mg intravenously

C.Continue chest compressions for 2 minutes

D.Deliver synchronized shock at 150 J

E.Deliver unsynchronized shock at 200 J

Answer:Deliver unsynchronized shock at 200 J

Explanation:

VF/pulseless VT should be treated with 1 shock as soon as identified

Important for meLess important

Deliver unsynchronized shock at 200 J is the correct answer because ventricular fibrillation and pulseless ventricular tachycardia (pVT) are shockable rhythms. These should be treated with unsynchronized defibrillation at 120 - 200 J as soon as identified.

Deliver synchronized shock at 150 J would be the appropriate course of action in unstable narrow complex tachycardia or stable wide-complex monomorphic tachycardia with a palpable pulse.

Administering adenosine 6mg intravenously would be the appropriate course of action in stable narrow complex supraventricular tachycardia. Adenosine may also be considered in stable regular wide complex monomorphic tachycardia prior to synchronized cardioversion to differentiate between VT and SVT with aberration.

Administering amiodarone 300mg intravenously is not the immediate course of action but should be considered if VF or pVT continues after defibrillation. As soon as VF or pVT is identified, the immediate course of action is to defibrillate the patient using an unsynchronized high-energy shock.

Continue chest compressions for 2 minutes is incorrect. While chest compressions may be resumed transiently when the defibrillator is being charged, chest compressions must be interrupted and defibrillation should take precedence in a shockable rhythm. Immediately after the safe delivery of the shock, chest compressions should be resumed for 2 minutes.

Question:

A 68-year-old lady presents to the GP surgery with ongoing tiredness. She is accompanied by her husband. You arrange for a set of blood tests to investigate the matter further. After 3 days, the results return and confirm that the patient is suffering from an iron-deficiency anaemia. You phone the patient, asking her to make an appointment with you over the next few days in order to discuss the results. That evening, whilst shopping in your local supermarket, the patient's husband approaches you. He explains that they are away on holiday for the next 2 weeks and asks if you can tell him the results now. Which of the following responses should you give?

A.Explain that patient confidentiality means you cannot discuss the results with him

B.Take him aside to a quieter area of the store, giving a summary of findings and advising him to tell his wife to call the surgery if she has any concerns

C.Explain that the results did not show anything alarming and that the discussion can wait until they return from their trip

D.Explain that you cannot give the results at this time but that will call him the following morning and explain them over the phone

E.Pretend that you have not seen the results of the tests yet and that you are waiting for an appointment with his wife to look at them more closely

Answer:Explain that patient confidentiality means you cannot discuss the results with him

Explanation:

Option 1 is the only option that would be appropriate in this situation. The General Medical Council (GMC) publications 'Good Medical Practice' (2013) and 'Confidentiality' (2009) emphasise the importance of maintaining patient confidentiality, which is 'central to trust between doctors and patients'. The patient has not provided you with permission to disclose her results to anyone and there are no other indications to do so (a full list of such indications can be found on page 6 of the 'Confidentiality' (2009) publication). As such, the results of the tests should only be discussed directly with the patient.

Whilst not strictly breaking confidentiality, option 5 is dishonest and so should also be discouraged. A simple but polite explanation regarding confidentiality should be all it takes here to avoid getting yourself in a potentially difficult situation.

References:

General Medical Council. Confidentiality. London: General Medical Council, 2009.

General Medical Council. Good Medical Practice. London: General Medical Council, 2013.

Question:

A 40-year-old female patient diagnosed with sickle cell anaemia had complicated recurrent hospital admissions with a recent episode where she suffered from acute severe pain affecting both her arms, pain when breathing in and out as well as extreme tiredness.

She was seen in the haematology clinic as an outpatient to optimise the management of her underlying condition to reduce the incidence of such complications.

Which of the following medications should this patient be commenced on?

A.Deferoxamine

B.Folic acid

C.Hydroxycarbamide

D.Penicillin V

E.Vitamin D

Answer:Hydroxycarbamide

Explanation:

Sickle cell patients should be started on long term hydroxycarbamide to reduce the incidence of complications and acute crises

Important for meLess important

Hydroxycarbamide reduces the frequency of painful episodes and the risk of life-threatening illness or death. However, it can also increase your risk of infections. It is advised not to be taken in pregnancy.

Hydroxycarbamide essentially makes your red blood cells bigger, stay rounder and more flexible. Therefore, less likely to turn into a sickle shape. This is achieved by increasing a special kind of haemoglobin called haemoglobin F.

Folic acid taken regularly in anaemia raises haemoglobin levels and helps provide a healthy reticulocyte response. However, the use of folic acid in patients with sickle cell disease is not well supported by primary literature.

Deferoxamine is an iron chelation therapy used in sickle cell disease to enhance iron excretion and removes excessive tissue iron in regularly transfused patients with sickle cell disease.

Vitamin D deficiency has been shown in 98 per cent of patients with sickle cell disease. As a result of low bone density, patients may develop osteonecrosis, chronic inflammation and related pain. Therefore whilst vitamin D supplementation is important, hydroxycarbamide has a more crucial role in reducing the incidence of complications and acute crises.

Penicillin V helps prevent life-threatening infections, particularly in patients who have undergone a splenectomy, which is not the case here.

Question:

A 65-year-old woman presents to the post-menopausal bleeding clinic. She reports that her last menstrual period was 9 years ago, but within the last 2 months she has been experiencing vaginal bleeding, with some clots. She reports no weight loss, abdominal or pelvic pain.

On further questioning, she reports that she has been pregnant once when she was 25, after which she took the combined oral contraceptive pill until reaching menopause. Since then, she has not been on any hormonal replacement therapy.

On further questioning, the patient reports that she underwent a total mastectomy at aged 34 for breast cancer, following which she completed a course of tamoxifen.

She has a 23 pack-year smoking history and drinks approximately one glass of wine a week.

The patient reports that she has done some online research and is worried about the risk of endometrial cancer.

Which of the following factors in this patient's history puts her at an increased risk of that diagnosis?

A.Previous contraceptive use

B.Previous mastectomy

C.Previous pregnancy

D.Previous medication for breast cancer

E.Smoking history

Answer:Previous medication for breast cancer

Explanation:

Tamoxifen may cause increased risk of endometrial cancer

Important for meLess important

The National Institute for Health and Care Excellence (NICE) states that endometrial cancer is a rare but serious side effect of tamoxifen use.

Evidence suggests that the combined oral contraceptive pill may be protective against endometrial and ovarian cancer. It does, however, increase the risk of cervical and breast cancer.

There has been no proven link between previous mastectomy and endometrial cancer. Risks of mastectomy do include chronic arm pain or numbness, bleeding, infection and lymphoedema in the affected arm.

Endometrial cancer has been shown to be more common in nulliparous women. Therefore the pregnancy history would not increase this patient's risk.

There is evidence also evidence that cigarette smoking may be protective against endometrial cancer. However, we know it poses a huge risk of other types of cancers, particularly those of the lungs and airways.

Question:

A 25-year-old female patient, 12 weeks pregnant, attends for a routine scan. She agrees for her baby to be screened for chromosomal disorders using the 'combined test', which is explained to her. The scan is undertaken, as is a blood test.

After a few days, she is told that the result shows a higher chance of her baby having Down's syndrome and invited to the hospital to discuss the results and next steps.

What combination of results from her combined test would have indicated a higher chance of Down's syndrome?

A.Reduced nuchal translucency, increased B-HCG, increased alpha-fetoprotein (AFP)

B.Reduced nuchal translucency, increased B-HCG, reduced PAPP-A

C.Reduced nuchal translucency, reduced B-HCG, reduced alpha-fetoprotein (AFP)

D.Thickened nuchal translucency, increased B-HCG, reduced PAPP-A

E.Thickened nuchal translucency, reduced B-HCG, reduced PAPP-A

Answer:Thickened nuchal translucency, increased B-HCG, reduced PAPP-A

Explanation:

Down's syndrome is suggested by ↑ HCG, ↓ PAPP-A, thickened nuchal translucency

Important for meLess important

The combined test for Down's syndrome consists of assessment of nuchal translucency on the 12-week scan, and blood tests for B-HCG and PAPP-A. This can only be performed between 11 and 13+6 weeks. The chance of Down's syndrome is raised when nuchal translucency is demonstrated to be thickened, B-HCG is raised, and PAPP-A is low.

The other options are therefore incorrect.

If women book in too late for the combined test, the triple or quadruple test should be offered between 15-20 weeks. AFP, mentioned in some of the options, plays a part in this later screening, and would be low when there is a higher chance of Down's syndrome.

Question:

A 27-year-old man is rushed into the emergency department after a frontal crash with his motorbike. He is awake and alert but he complains of excruciating pain in his left leg. On examination, there is an open fracture of the left tibia with extensive soft tissue damage and contamination. Intravenous antibiotics have been prescribed.

Which one of the following is the first-line management for his fracture?

A.Urgent intravenous antibiotics and debridement in theatre

B.Urgent intravenous antibiotics and external fixation in theatre

C.Urgent intravenous antibiotics and fracture irrigation in the emergency department

D.Urgent intravenous antibiotics and free flap surgery in theatre

E.Urgent intravenous antibiotics and internal fixation in theatre

Answer:Urgent intravenous antibiotics and debridement in theatre

Explanation:

Definitive management of open fractures should be delayed until soft tissues have recovered

Important for meLess important

The correct answer is 'urgent intravenous antibiotics and debridement'.

This patient has an open fracture of the left tibia. An open fracture is a fracture which has breached the overlying skin with associated injuries to the surrounding soft tissues.

The immediate priority for open fractures is antibiotics and debridement - immediately for highly contaminated wounds and within 12 or 24 hours otherwise, depending on the injury.

A combined orthoplastic approach is recommended to achieve debridement, fixation and soft tissue cover.

Fixation and definitive soft tissue cover can be done immediately after debridement if suitable. If this is not possible (e.g. wound needs a second look and further debridement), cover should be carried out within 72 hours to minimise the risk of infection.

'Urgent intravenous antibiotics and external fixation' is incorrect because although external fixation can be used as a temporary step, debridement is done first.

'Urgent intravenous antibiotics and fracture irrigation' is incorrect because irrigation of the fracture in the emergency department before operative debridement is not advised by NICE.

'Urgent intravenous antibiotics and free flap surgery' is incorrect as free flap surgery to achieve soft tissue cover is done after debridement.

'Urgent intravenous antibiotics and internal fixation' is incorrect as debridement should be done first and definitive management of open fractures should only be carried out when it can be immediately followed by soft tissue cover.

Question:

An 18-month-old boy is brought in by his mother who is about a rash that developed after a febrile illness, just as he seemed to be getting better.

On examination, you note wide-spread pink-red papules and macules (2–5 mm in diameter) mostly on the trunk, that blanch when touched. The child does not seem distressed by them and appears otherwise well with normal observations.

What is the most likely diagnosis?

A.Chickenpox

B.Hand, foot and mouth disease

C.Measles

D.Roseola

E.Rubella

Answer:Roseola

Explanation:

Roseola infantum

common 6 months - 2 years

fever followed later by rash

febrile seizures common

Important for meLess important

Roseola ('sixth disease') is common in this age group and typically starts with a fever followed by a fine rash which is maculopapular, painless and non-pruritic, and typically affects the trunk most. Lesions usually last around 2 days and do not blister. The child may also have febrile seizures. Roseola is caused by the human herpes virus type 6B or 7. No treatment is required, and long-term complications are rare.

Chickenpox would be very pruritic (itchy) and so the child would very likely be more bothered by the lesions. The rash is also characteristically blistering, rather than maculopapular, with the lesions eventually scabbing over. This does not fit the examination findings in this scenario.

Hand, foot and mouth disease would typically affect the specific areas included in the illness' name (limbs/extremities and mouth), rather than mostly affecting the trunk as in this case, making it a less likely diagnosis. The rash would be described as flat discoloured spots or bumps that may blister. Hand, foot and mouth disease is usually due to coxsackie A16 or enterovirus 71.

A rash due to the measles virus would typically start from the face and spread down to the torso and limbs. Similarly to roseola, the measles rash appears roughly 3–5 days after symptoms begin and is not itchy. In the case of measles, however, the fever symptoms do not subside and instead accompany the rash, making this diagnosis less likely in this case. A defining characteristic of measles is that the fever disappears when the rash stops spreading. While a roseola rash is usually more pink-red, a measles rash is more red-brown. Small white spots known as Koplik's spots may form inside the mouth two or three days after the start of symptoms and are commonly mentioned in exam questions.

The rubella virus (German measles or three-day measles) would typically cause a mild febrile illness with a rash that starts from the face and spreads down. The rash appears early in the illness, disappearing after 3 days. Therefore, it is not the most likely diagnosis in this case.

Question:

A 31-year-old woman presents as her fingers intermittently turn white and become painful. She describes the fingers first turning white, then blue and finally red. This is generally worse in the winter months but it is present all year round. Wearing gloves does not help. Clinical examination of her hands, other joints and skin is unremarkable. Which one of the following treatments may be beneficial?

A.Amitriptyline

B.Aspirin

C.Pregabalin

D.Propranolol

E.Nifedipine

Answer:Nifedipine

Explanation:

Nifedipine is a pharmacological option for Raynaud's phenomenon

Important for meLess important

This lady has Raynaud's disease.

Question:

A 31-year-old woman with known sickle cell disease presents to her GP feeling acutely lethargic. She has also noticed palpitations and shortness of breath on exertion. She has previously been fit and well. However, her daughter has been unwell over the past few days with fevers, malaise and a facial rash.

Blood test results 3 months ago:

Hb 116 g/L Male: (135-180)

Female: (115 - 160)

Platelets 178 \* 109/L (150 - 400)

WBC 6.3 \* 109/L (4.0 - 11.0)

Blood test results today:

Hb 71 g/L Male: (135-180)

Female: (115 - 160)

Platelets 110 \* 109/L (150 - 400)

WBC 4.1 \* 109/L (4.0 - 11.0)

Reticulocytes 0.1 % (0.5 - 1.5)

What is the most likely complication which has occurred here?

A.Acute chest syndrome

B.Acute splenic sequestration

C.Aplastic crisis

D.Community acquired pneumonia

E.Haemolytic crisis

Answer:Aplastic crisis

Explanation:

Aplastic crises in sickle cell disease are associated with a sudden drop in haemoglobin

Important for meLess important

The correct answer here is aplastic crisis in sickle cell disease. There are multiple clues to this, including the symptoms of anaemia, the exposure to parvovirus B-19 (which is the most common trigger) and the drop in haemoglobin with a low reticulocyte count. This implies acute bone marrow failure.

Haemolytic crisis and acute splenic sequestration would also cause a sudden drop in haemoglobin levels in sickle cell patients. However, in these conditions, you would expect a raised reticulocyte count, given that the problem is with red blood cell survival rather than red blood cell production.

Acute chest syndrome is an acute respiratory complication of sickle cell disease. However, that would not explain the blood results.

Community-acquired pneumonia would cause respiratory symptoms but would not account for the blood results noted here.

Question:

James, 40, has presented to his GP with weakness of the right side of his face, which examination confirms. James also reveals that he has experienced pain in his ear and otoscopy reveals the presence of vesicles on his tympanic membrane. Which of the following is the likely diagnosis?

A.Ramsay Hunt syndrome

B.Bell's palsy

C.Trigeminal neuralgia

D.Acoustic neuroma

E.Guillain-Barre syndrome

Answer:Ramsay Hunt syndrome

Explanation:

The correct answer for this question is Ramsay Hunt syndrome.

Ramsay Hunt syndrome, type 2, is a condition where reactivation of pre-existing Varicella Zoster virus occurs in the geniculate ganglion. This is the reason for the vesicles on the tympanic membrane. Ramsay Hunt syndrome can also cause pain in the ear, facial paralysis, taste loss, dry eyes, tinnitus, vertigo and hearing loss.

Bell's palsy could explain the facial weakness in this patient. However, the presence of tympanic vesicles and pain in the ear make this differential unlikely. Conversely, patients with trigeminal neuralgia are unlikely to have facial weakness, although this could explain the pain.

An acoustic neuroma could explain both the facial weakness, although this is rare, and the ear pain. However, tympanic vesicles are not present in this condition.

Guillain-Barre syndrome typically presents with progressive weakness starting distally and moving proximally. Therefore, a first presentation of weakness on the right side of this patient's face would not be a typical presentation of Guillain-Barre syndrome.

Question:

A 7-month old infant is brought to the general practitioner by his mothers. They describe a history of a runny nose with a mild fever for the past week. Today, they thought he looked paler than usual, has been increasingly drowsy, and seemed to have difficulty breathing.

On examination, he is of normal colour, there is nasal flaring and moderate intercostal recession. He only wakes after rubbing his chest for 5 seconds. His pulse rate is 140 beats per minute, respiratory rate is 40 breaths per minute, oxygen saturations 94% on room air, and temperature is 37.9 ºC.

Which aspect of the presentation is most worrying as a sign of serious illness?

A.Episode of pallor noted by the mothers

B.Intercostal recession

C.Nasal flaring

D.Oxygen saturations

E.Respiratory rate

Answer:Intercostal recession

Explanation:

Moderate or severe intercostal recession is a red flag in paediatric patients with a fever

Important for meLess important

The likely diagnosis here is bronchiolitis, indicated by the coryzal phase with a mild fever, followed by an episode of increased work of breathing with evidence on examination (i.e. tachypnoea, reduced oxygen saturation, nasal flaring, and intercostal recession).

The presence of intercostal recession is the most worrying aspect, as this represents a dramatically increased work of breathing and is a worrying sign for prognosis. This is classed as a red flag (high risk) in the NICE traffic light system for identifying the risk of serious illness.

An episode of pallor noted by the mothers would be an amber flag (intermediate risk) on the traffic light system. Pallor noted on examination would be a red flag, however, we are told that at current, his colour is normal.

Nasal flaring is an amber flag (intermediate risk) on the traffic light system, representing a moderately increased work of breathing.

Oxygen saturations of below 96% on room air is an amber flag (intermediate risk) on the traffic light system.

A respiratory rate of above 40 breaths per minute would be an amber flag (intermediate risk) on the traffic light system for an infant aged 12 months or older, however not for a 6-12-month-old as in this scenario.

Question:

You are called to see a 2 day-old neonate who was born 1 week premature following a premature rupture of membranes. He has failed to pass meconium in the first 24 hours and has begun vomiting. You witness one episode of vomiting during the examination which is stained green, which you suspect is bile. On examination he is irritable with an obvious distension of the abdomen but is apyrexial with normal oxygen saturations. Palpation of the abdomen causes further irritation but you are unable to feel any discrete mass. What is the most likely underlying condition?

A.Necrotising enterocolitis

B.Intussusception

C.Respiratory distress of the newborn

D.Pyloric stenosis

E.Cystic fibrosis

Answer:Cystic fibrosis

Explanation:

This history is suggestive of a meconium ileus, a small bowel obstruction caused by thickened meconium which is secondary to cystic fibrosis. This typically presents with the neonate not passing meconium with a distended abdomen. Vomiting may be bilious, which is in contrast to pyloric stenosis which does not contain bile. There is also no mass suggestive of intussusception or pyloric stenosis.

Question:

A 52-year-old man is admitted to hospital with acute pancreatitis. He drinks 90 units of alcohol per week. When is the peak incidence of delirium tremens following alcohol withdrawal?

A.2 hours

B.6 hours

C.24 hours

D.36 hours

E.72 hours

Answer:72 hours

Explanation:

Alcohol withdrawal

symptoms: 6-12 hours

seizures: 36 hours

delirium tremens: 72 hours

Important for meLess important

Question:

A 20-year-old man presents with a three-day history of diarrhoea following a holiday to Thailand. He reports opening his bowels up to 15 times per day.

On examination, he has dry mucous membranes, loss of skin turgor and a prolonged capillary refill time. As part of his admission workup, an arterial blood gas is taken.

What would most likely be seen on arterial blood gas?

A.Metabolic acidosis with hyperkalaemia

B.Metabolic acidosis with hypokalaemia

C.Metabolic alkalosis with hyperkalaemia

D.Metabolic alkalosis with hypokalaemia

E.Mixed metabolic and respiratory acidosis

Answer:Metabolic acidosis with hypokalaemia

Explanation:

Prolonged diarrhoea may result in a metabolic acidosis associated with hypokalaemia

Important for meLess important

The correct answer is hypokalaemic metabolic acidosis. The patient in the question is suffering from gastroenteritis leading to severe diarrhoea. This leads to the prolonged loss of bicarbonate from the GI tract leading to metabolic acidosis. Furthermore, there is a loss of K+ ions via the GI tract leading to hypokalaemia.

Hyperkalaemic metabolic acidosis is incorrect. As stated above the patient would be expected to have metabolic acidosis, however, they would have depleted K+ levels due to GI losses. Hyperkalaemic metabolic acidosis would be expected in patients with either diabetic ketoacidosis or lactic acidosis.

Hyperkalaemic metabolic alkalosis is incorrect. Due to the GI loss of bicarbonate, there would be low pH on arterial blood gas. Metabolic acidosis is often seen in prolonged vomiting due to H+ ion loss. Furthermore, in alkalosis serum K+ is exchanged for intracellular H+ ions to bring up pH, so it is very uncommon to see a hyperkalemic metabolic alkalosis.

Hypokalaemic metabolic alkalosis is incorrect. As mentioned above there would be a low pH on arterial blood gas due to bicarbonate loss via the GI tract. Alkalosis leads to intracellular K+ shift and so hypokalaemia is a feature of most causes of metabolic alkalosis.

Mixed metabolic and respiratory acidosis is incorrect. The arterial blood gas picture in an otherwise healthy patient with diarrhoea would be a metabolic acidosis with or without respiratory compensation. Mixed acidosis would be seen in a patient with cardiac arrest or multiple organ failure which is not seen in this patient.

Question:

A 25-year-old woman presents to the emergency department with acute calf severe pain and swelling after a blow to the leg. She cannot weight bear.

The left calf is 7 cm larger in circumference than the right and is tender. Active and passive movement causes severe pain. There are no neurovascular signs, however, pulses are weak. She is admitted and has been asking for oramorph every 5 minutes.

The patient takes the combined oral contraceptive pill and has no other past medical history. No delays in treatment or investigation are anticipated.

What is the most appropriate next step in her management?

A.Anteroposterior and lateral lower leg x-rays

B.Arrange immediate fasciotomy

C.Arrange immediate leg vein ultrasound

D.Immediately start apixaban

E.Keep the leg elevated and apply an above knee backslab

Answer:Arrange immediate fasciotomy

Explanation:

Acute compartment syndrome requires emergency fasciotomy as soon as possible

Important for meLess important

The presence of severe acute limb pain that is worsened on both active and passive movement, along with an inability to weight bear following trauma should raise suspicion of compartment syndrome. This patient using excessive breakthrough analgesia and the reduced pulses on examination support this diagnosis. Trauma to the leg may result in direct injury to blood vessels and inflammation, elevating the intracompartmental pressure due to the accumulation of blood and soft tissue swelling.

Arrange immediate fasciotomy is correct as compartment syndrome requires emergency treatment to relieve the increased intracompartmental pressure. A fasciotomy both relieves pain and decreases the risk of tissue necrosis developing.

Anteroposterior and lateral lower leg x-rays is incorrect. Although this may be useful in identifying co-existing bone injuries, this patient has features that are strongly suggestive of compartment syndrome, and immediate treatment via a fasciotomy should be performed first. X-rays are also of very little use in compartment syndrome as they often do not show any pathology.

Arrange immediate leg vein ultrasound is incorrect. This would be appropriate if deep vein thrombosis (DVT) was suspected. Although this patient takes the combined oral contraceptive pill and has calf swelling, her symptoms emerged following trauma and DVT does not typically cause pain that is severe enough to excessive breakthrough an analgesia use, and the pain is not typically worsened on passive movement. DVT is also not associated with decreased arterial pulsation. This patient's two-level DVT Wells score is -1 (calf swelling at least 3 cm larger than the asymptomatic side which adds 1 point, and an alternative diagnosis is at least as likely as DVT (her compartment syndrome), which removes 2 points).

Immediately start apixaban is incorrect. As mentioned above, DVT is less likely in this patient as her symptoms have emerged following trauma and the pain in DVT is not typically severe enough to cause excessive breakthrough analgesia use, nor is it usually worsened on passive movement. DVT is also not associated with decreased arterial pulsation, and her Wells score is -1.

Keep the leg elevated and apply an above knee backslab is incorrect. This is an initial management step for lower limb fractures, such as a tibial fracture, however, the presence of excessive breakthrough analgesia, pain on any movement, and weak arterial pulses suggests the presence of compartment syndrome. Applying a backslab may add more compression to her leg and make the compartment syndrome worse, increasing her risk of complications developing such as muscle tissue necrosis.

Question:

A 30-year-old woman presents with pain in her hands for two weeks. She has felt generally run down recently. The pain is worsening and she is unable to do up buttons.

Her brother has psoriasis and her mother has ulcerative colitis.

On examination, her whole left middle finger is swollen and tender. There is warmth, tenderness and boggy swelling of her proximal and distal interphalangeal joints on both hands. There are no nail, skin or scalp changes.

ESR 30 mm/hr (1-20) [females]

CRP 8 mg/L (< 5)

Rheumatoid factor 12 IU/ml (< 14)

Anti-CCP 1 IU/ml (< 20)

ANA Positive at low titre

dsDNA Negative

What is the most likely diagnosis?

A.Gout

B.Osteoarthritis

C.Psoriatic arthritis

D.Rheumatoid arthritis

E.Systemic lupus erythematosus

Answer:Psoriatic arthritis

Explanation:

Psoriatic arthropathy can present before psoriatic skin lesions - a positive family history of psoriasis may point towards this diagnosis

Important for meLess important

Psoriatic arthritis will present with joint involvement before skin involvement in 7-15% of cases. Dactylitis (swelling of a whole digit) suggests psoriatic arthritis or ankylosing spondylitis. The family history of psoriasis is relevant, as is ulcerative colitis as these are associated with HLA-B27, while rheumatoid is not.

It is unusual for gout to present with so many joints affected in one flare. The most common site is the first metatarsophalangeal (50% of first presentations) followed by the knee - the hands can be affected but less commonly and less often at first presentation. It does not cause dactylitis. It is usually acute, reaching maximum intensity within hours and patients present early.

Osteoarthritis of the hands would be unusual at this age, and although the affected joints can become inflamed it does not cause synovitis (shown by the boggy swelling).

Dactylitis is not a feature of rheumatoid arthritis. Rheumatoid also classically spares the DIPs and is not associated with psoriasis or ulcerative colitis. Rheumatoid factor is a fairly sensitive but not very specific test and is positive in up to 10% of psoriatic arthritis, and 4% of the well population. Anti-CCP is more specific and associated with a worse prognosis.

Systemic lupus erythematosus would generally present with more symptoms than arthritis alone. Dactylitis is generally not a feature of lupus. ANA is positive at low titre in 50% of psoriatic arthritis and would be expected to be positive at high titre in lupus.

Question:

A 25-year-old lady presents to the GP with itchy eyes. She describes a gritty feeling in both her eyes and has noticed that they stick together in the morning. The grittiness is also worst first thing when she wakes up. She complains of no other symptoms.

Given her presentation what is the most likely diagnosis?

A.Dry eye syndrome

B.Blepharitis

C.Cellulitis

D.Basal cell carcinoma (BCC) of the eyelid

E.Allergic Rhinitis

Answer:Blepharitis

Explanation:

Bilateral grittiness - think blepharitis

Important for meLess important

This question is asking about a woman presenting with bilateral grittiness that is worse in the mornings along with sticking eyelids. This is the classical presentation of blepharitis.

Dry eye syndrome is a common condition most commonly affecting the elderly. It also presents with a bilateral gritty feeling, however, symptoms are typically worse at the end of the day and it may be associated with pain.

Cellulitis would typically present with a red inflamed tender eye and symptoms of infection such as fever or discharge. You may also note proptosis or ptosis, however, none of these are noted in this case.

A basal cell carcinoma (BCC) of the eyelid can present with a gritty feeling in the eye, however, this would be unilateral and not bilateral.

Allergic rhinitis (hay fever) may also present with itchy eyes however you expect other symptoms such as a rhinorrhoea, sneezing and an itchy nose.

Question:

An 84-year-old woman is reviewed by her general practitioner after she noticed a new, painless lump in her groin. She first noticed the lump 3 weeks ago, which has since grown slightly. On examination, there is a hard lump on her right labia majora and she has right inguinal lymphadenopathy. Her past medical history is unremarkable, and she has no known allergies.

Which of the following is the most likely diagnosis?

A.Bartholin's cyst

B.Condylomata lata

C.Lipoma

D.Sebaceous cyst

E.Vulval carcinoma

Answer:Vulval carcinoma

Explanation:

Older woman with labial lump and inguinal lymphadenopathy → ?vulval carcinoma

Important for meLess important

This stem describes an older woman presenting with a labial lump and inguinal lymphadenopathy, which should raise a suspicion of vulval carcinoma. This is supported by the labia lump being firm and growing in size over a short period of just 3 weeks. Risk factors for vulval carcinoma include increased age, smoking, and human papillomavirus (HPV).

Bartholin's cyst is an incorrect answer. A Bartholin's cyst is a small, fluid-filled cyst that is caused by an obstructed Bartholin's gland duct. Unlike this patient's presentation, Bartholin's cysts typically are painful and soft on examination.

Condylomata lata is an incorrect answer. Condylomata lata is a benign vulval lesion, which refers to the wart-like lesions seen in secondary syphilis. Given that condylomata lata is rare and the patient has no other known history, this makes this answer less likely. Furthermore, the presence of rapid growth and inguinal lymphadenopathy should raise concerns for vulval carcinoma.

Lipoma is incorrect. Lipoma is a benign vulval lesion that occurs with fat deposition in the soft tissue. Unlike this stem, lipomas are typically soft and not known to grow rapidly. The presence of inguinal lymphadenopathy also makes this option less likely.

Sebaceous cyst is not a correct answer. A sebaceous cyst is a soft lump caused by keratin collecting beneath the skin. They are typically slow-growing, benign, and it would not be unusual for inguinal lymphadenopathy to be present with them. A vulval carcinoma would be more likely to cause lymphadenopathy.

Question:

A 9-year-old boy presents to the general practitioner with his father complaining of right hip pain.

His father explains that he had the “flu” a few weeks ago.

His observations are as follows: he is alert, heart rate 78 bpm, respiratory rate 18 breaths/min, temperature 38.3ºC, blood pressure 118/76 mmHg, oxygen saturations, 99% on room air.

What is the most appropriate management?

A.Discharge with 5 days of oral antibiotics

B.Discharge with pain relief

C.Reassure and discharge

D.Refer for same-day assessment

E.Refer routinely to orthopaedics

Answer:Refer for same-day assessment

Explanation:

If a child with a limp/hip pain has a fever they should be referred for same-day assessment, even if a diagnosis of transient synovitis is suspected

Important for meLess important

The child is likely to have hip pain due to transient synovitis secondary to a previous illness, such as the flu.

Discharging with oral antibiotics is not indicated as the patient is likely to have transient synovitis, which is managed conservatively. Antibiotics may be indicated if the patient was showing signs of a septic joint.

Discharging with pain relief is not appropriate. Although a septic joint is unlikely in this case, it has not been completely ruled out so the patient will need to be assessed by orthopaedics before they can be discharged.

Reassurance and discharge is incorrect. The patient will need formal assessment due to their current fever, and recent history of illness, and cannot be discharged before this occurs.

It is very important to refer a child with hip pain for same-day assessment if they have a fever, as to exclude the possibility of the child having a septic joint.

Routine referral to orthopaedics is not appropriate as this might take a very long time and the child will need urgent assessment.

Question:

A 68-year-old woman has been investigated as an inpatient for a six month history of cough and weight loss. Following a CT scan of her chest she is diagnosed with lung cancer. Biopsy and further imaging confirm this to be metastatic small cell lung cancer. After discussion at the multi-disciplinary team meeting and subsequently with the patient it is agreed that her treatment be palliative.

On the ward she has been taking codeine sulphate 60mg four times a day for pain however this is still poorly controlled. The decision is made to convert this to oral morphine.

What is the equivalent dose of oral morphine daily?

A.6mg

B.20mg

C.24mg

D.80mg

E.120mg

Answer:24mg

Explanation:

Codeine to morphine - divide by 10

Important for meLess important

This woman is taking 240mg of codeine per day (60mg x 4). To convert to morphine, this figure needs to be divided by 10. This gives a daily dose of 24mg.

6mg represents 1/10th of her codeine dose, however as she takes these four times daily the daily dose of morphine required needs to be 4 times this figure.

20mg would be 1/12th of the daily dose which is incorrect.

80mg is 1/3rd of her daily codeine dose which is an incorrect conversion. Converting oral morphine to subcutaneous diamorphine requires dividing by 3.

120mg is half of her daily codeine dose which is an incorrect conversion. Converting oral morphine to subcutaneous morphine requires dividing by 2.

Question:

A 57-year-old man presents to the emergency department with sudden onset, severe umbilical pain. This was associated with vomiting and one episode of bloody diarrhoea. He has never had this before and has no surgical history.

The patient has a history of hypertension and is prescribed ramipril, although he is poorly adherent with this. He smokes 20 cigarettes per day.

On examination, his abdomen is soft but extremely tender and his pulse is irregularly irregular with a rate of 120 beats per minute.

The team stabilises his atrial fibrillation and arrange to investigate his abdominal pain.

What investigation should be performed?

A.Abdominal ultrasound

B.Abdominal x-ray

C.Coagulation studies

D.Serum amylase

E.Venous blood gas

Answer:Venous blood gas

Explanation:

Acute mesenteric ischaemia causes a raised lactate and is the first-line investigation

Important for meLess important

Sudden onset, severe abdominal pain associated with vomiting and a rapid episode of bloody diarrhoea is suggestive of acute mesenteric ischaemia, as is pain out of proportion with the clinical findings. The suspicion for this diagnosis is high in this patient as he has vascular risk factors (uncontrolled hypertension and smoking) and appears to be in atrial fibrillation. Acute mesenteric ischaemia is often caused by embolic events associated with atrial fibrillation. Venous blood gas is the most useful of the listed investigations. Approximately 90% of patients with ischaemic bowel will have elevated lactate and associated metabolic acidosis. This will confirm suspicion for the diagnosis and also give information about the severity. However, lactate is not specific. A CT angiography abdomen and pelvis with contrast is needed urgently to assess for ischaemic bowel.

Abdominal ultrasound is typically done to assess for gallbladder, liver or pancreatic pathology. As above, this history is highly suspicious for acute mesenteric ischaemia. This is a surgical emergency, and so investigation would focus on confirming (or ruling out) this diagnosis with a CT angiography scan. Whilst features of ischaemia can be seen on abdominal ultrasound, they may be missed (e.g. due to sonographer experience, bowel gas or body habitus) and a CT is more sensitive. An ultrasound may not be available in an emergency and the procedure may be too painful for the patient to tolerate. It would not be the first-line investigation in this patient.

Abdominal x-ray is typically used to diagnose obstruction. The history of very acute onset abdominal pain, bowel emptying and the examination that is out of proportion with the clinical findings are not suggestive of bowel obstruction. Bowel obstruction would be associated with abdominal distension and altered bowel sounds. Radiographs of patients with acute bowel ischaemia are usually non-specific or normal. Whilst an abdominal x-ray may help rule out a differential of obstruction, it is unlikely to help confirm a diagnosis of ischaemia.

Coagulation studies are necessary to assess for risk of bleeding prior to theatre. They may also diagnose a potential coagulopathy which could be a risk for further thrombosis. However, this information is non-specific and does not confirm the suspicion of bowel ischaemia.

Serum amylase is non-specific and normal in approximately half of the patients with acute mesenteric ischaemia. It would be more useful if pancreatitis was suspected. However, as above, the clinical history is more in keeping with acute ischaemia than pancreatitis. The pain of pancreatitis is typically epigastric, radiating to the back. It is not associated with disproportionate pain on examination. It is not associated with atrial fibrillation.

Question:

A 24-year-old male is brought in following a motorcycle accident. The paramedic tells you that the patient has lost a significant amount of blood through an open femoral fracture, which has since been reduced, as well as a haemothorax. The patient's blood pressure is 95/74mmHg and his heart rate is 128bpm. The patient is conscious but confused.

What stage of haemorrhagic shock is this patient in?

A.Class I (<15% blood loss)

B.Class II (15-30% blood loss)

C.Class III (30-40% blood loss)

D.Class IV (>40% blood loss)

E.He is not in shock

Answer:Class III (30-40% blood loss)

Explanation:

In haemorrhage shock, BP does not fall until about 30% of blood volume is lost

Important for meLess important

This patient is in Class III haemorrhagic shock.

The patient has tachycardia and hypotension which suggests he is at this stage of shock. The fact that he is not unconscious means that this is not Class IV shock.

Class I shock would be completely compensated for.

Class II shock would cause tachycardia.

Class III shock causes tachycardia and hypotension as well as confusion.

Class IV shock causes loss of consciousness as well as severe hypotension.

Question:

A 64-year-old male who has been on long term chlorpromazine presents with repetitive eye blinking. He reports he is unable to control this and is worried about what might be causing it. He is otherwise well in himself and has no visual disturbance. He has a normal facial and ocular examination with the exception of excessive rapid blinking.

What is the most likely cause of his symptoms?

A.Parkinsonism

B.Dry eyes

C.Sjogren's syndrome

D.Tardive dyskinesia

E.Benign essential blepharospasm

Answer:Tardive dyskinesia

Explanation:

Tardive kinesia can present as chewing, jaw pouting or excessive blinking due to late onset abnormal involuntary choreoathetoid movements in patients on conventional antipsychotics

Important for meLess important

The correct answer is tardive dyskinesia. The patient has been on a long term antipsychotic - chlorpromazine and has developed late-onset extrapyramidal side effects. Patients most typically develop lip-smacking, jaw pouting or chewing however repetitive blinking or tongue poking can also occur. This is often involuntary and difficult to treat. Where possible replacing the antipsychotic may help some patients or alternatively, a trial of tetrabenazine may provide some relief.

Parkinsonism can occur in patients taking conventional antipsychotics. Patients experience symptoms similar to those with Parkinson's disease for example tremor, blank facies, bradykinesia and muscle rigidity. There is no mention of any other symptoms in this stem and you would not expect repetitive blinking in parkinsonism. As such this option is incorrect.

Dry eyes may lead to eye twitching but repetitive blinking would be unlikely. Furthermore, you would expect other symptoms to be present such as watering of the eyes or visual disturbance.

Sjogren's syndrome can cause dry eyes but as per the above answer, this in itself should not cause the repetitive involuntary blinking.

Blepharospasm is involuntary twitching or contraction of the eyelid. It is a focal dystonia which most commonly lasts only a few days but can be life long. Patients may be light sensitive and experience periods where the eye clamps shut. The cause is typically unknown but commonly occurs due to stress or fatigue. Given that the patient in the stem is on chlorpromazine, a typical antipsychotic, it is more likely he is suffering tardive dyskinesia due to extrapyramidal side effects.

Question:

You are reviewing a 54-year-old male in a general medical ward. The patient is currently on warfarin and their latest INR result comes back elevated at 6.5. You start the patient on a vitamin K infusion and their INR returns back to normal levels. You decide to review the patient's medications on their drug chart. Which drug is most likely to have interacted with warfarin and caused the raised INR level?

A.Phenytoin

B.Rifampicin

C.Clarithromycin

D.St John's Wort

E.Carbamazepine

Answer:Clarithromycin

Explanation:

Clarithromycin inhibits the cytochrome P450 system and can lead to accumulation of warfarin and a raised INR

Important for meLess important

1 - Incorrect. This is a P450 system inducer and would cause the INR level to decrease.

2 - Incorrect. This is a P450 system inducer and would cause the INR level to decrease.

3 - Correct. This is a P450 system inhibitor and would cause the INR level to increase.

4 - Incorrect. This is a P450 system inducer and would cause the INR level to decrease.

5 - Incorrect. This is a P450 system inducer and would cause the INR level to decrease.

Inhibitors of the cytochrome P450 system leads to accumulation of warfarin and causes the INR to increase. The only P450 inhibitor from the above answer options is clarithromycin. All the other answer options are P450 inducers which would reduce the accumulation of warfarin and would instead cause the INR to decrease.

Question:

A 23-year-old lady has presented to her GP with a lump on her right breast. She does not have a family history of breast cancer. On examination, there is a smooth, rubbery, mobile mass measuring 3.5cm in diameter and with clearly defined edges. She has had an ultrasound of her breasts which reports that there is a single round solid mass of 3.5cm diameter, which is well circumscribed and lobulated. Core biopsy demonstrates epithelial and stromal elements consistent with a fibroadenoma. The lump is causing her moderate discomfort and she says she would like to have it removed. Which one of the following options is the most appropriate to advise this lady

A.The lump will regress by itself so no need to remove

B.The lump is non-cancerous and hence she cannot have it removed, but to return if it changes or grows

C.Refer her for excision biopsy to remove the mass

D.Prescribe her ibuprofen for the pain, and advise her that she does not require removal of the lump

E.Refer her for a breast mammogram to assess the lump.

Answer:Refer her for excision biopsy to remove the mass

Explanation:

Breast fibroadenoma: surgical excision is usual if >3cm

Important for meLess important

As this lump has examination, ultrasound and histological findings of a fibroadenoma and is already over 3cm and causing moderate discomfort, surgical excision should be recommended. It is important that histological evidence is obtained as has been performed here to confirm a diagnosis of fibroadenoma if excision is required.

A significant minority of fibroadenomas will disappear without treatment making this answer incorrect. Observation and simple advice would be sufficient if the fibroadenoma were less than 3cm, however the large size, discomfort it is causing and her request to have it removed makes this incorrect. A breast mammogram is usually ineffective for a younger lady due to dense breasts. Prescribing ibuprofen is generally the treatment for fibroadenosis which is a different condition where women get painful breasts generally around their periods. It would not be a solution for the discomfort being caused likely by the mass effect of the fibroadenoma.

Question:

An 18-year-old primip (11 weeks gestation) attends your clinic complaining of unilateral leg redness and warmth. The problem began following cuts to her left anterior shin whilst gardening. On examination she is afebrile and there is no evidence to suggest venous thromboembolism.

You diagnose cellulitis and recommend antibiotics. The patient is allergic to penicillins which have previously resulted in angioedema.

Which is the most appropriate antibiotic to prescribe in this instance?

A.Clindamycin

B.Doxycycline

C.Erythromycin

D.Flucloxacillin

E.Penicillin V

Answer:Erythromycin

Explanation:

Erythromycin is the antibiotic of choice for cellulitis in pregnancy if the patient is penicillin allergic

Important for meLess important

Erythromycin is the antibiotic of choice for cellulitis in pregnancy if the patient is penicillin allergic.

Clindamycin is an effective antibiotic to treat cellulitis but it is not first line. It also has an uncertain safety profile during the first trimester of pregnancy and should therefore be used with caution.

Tetracyclines such as doxycycline are teratogenic and are associated with skeletal abnormalities during the first trimester. Tetracyclines are also contraindicated during the second and third trimesters, as they are known to cause infant teeth discolouration and maternal hepatotoxicity.

Flucloxacillin and penicillin V are both penicillins and should not be prescribed for this patient due to her history of allergy.

Question:

A 59-year-old man presents to the Acute Medical Unit complaining of back pain. He has a history of hypertension, congestive cardiac failure, type 2 diabetes and prostate cancer.

His blood pressure is well-controlled on amlodipine and ramipril. In addition to this, he takes bisoprolol and eplerenone due to previous issues with lower limb swelling. He takes metformin, and was prescribed sitagliptin two months ago due to an increase in his Hba1c readings. An isotope bone scan four months before had shown metastasis of his prostate cancer to his pelvic girdle, at which point he had commenced monthly goserelin injections.

On examination, you notice pronounced breast tissue bilaterally.

Which of his medications is the most likely cause of this examination finding?

A.Eplerenone

B.Ramipril

C.Metformin

D.Sitagliptin

E.Goserelin

Answer:Goserelin

Explanation:

GnRH agonists (e.g. goserelin) used in the management of prostate cancer may result in gynaecomastia

Important for meLess important

This patient has an incidental examination finding of gynaecomastia. Of the medications listed above, goserelin is most strongly linked to causing gynaecomastia.

Goserelin is a gonadotropin releasing hormone (GnRH) agonist. In normal physiology, the pulsatile release of GnRH stimulates testosterone production. When goserelin is given long-term in a non-pulsatile manner, this disrupts the endogenous feedback loops controlling testosterone production, and results in hypoandrogenism. This in turn causes the development of gynaecomastia.

Of note, although both are aldosterone antagonists, a comparison of results from the RALES and EPHESUS trials revealed that eplerenone was much less likely to cause gynaecomastia than spironolactone in heart failure patients (0.5% vs 10%). This is because unlike spironolactone, eplerenone does not inhibit free testosterone binding to androgen receptors on breast tissue.

The other three medications listed are not strongly linked to the development of gynaecomastia.

Question:

A 9-month-old baby is seen on the ward after arriving into the emergency department last night with seizures. The parents show you a video of the contractions which appear very similar to colic. They also report a change in her development and are concerned she is struggling. You arrange an EEG which shows hypsarrhythmia and a MRI head which is abnormal. What is the most likely diagnosis?

A.Infantile colic

B.Pseudo seizures

C.West's syndrome

D.Febrile convulsions

E.Temporal lobe epilepsy

Answer:West's syndrome

Explanation:

The seizure pattern in west's syndrome are known as infantile spasms, and to the family they can appear to look like colic.

In this case, it is important to understand there is a definitive pathology due to the abnormal EEG and MRI, with hypsarrhythmia being classical of west's syndrome.

Infantile colic and pseudo seizures in babies can look similar to seizures, however, the abnormal EEG concludes a pathology within the brain. There is no history of an infection or fever to support febrile convulsions. Temporal lobe seizures are commonly partial seizures with sensory auras.

Question:

The parents of a 3-year-old boy with cystic fibrosis ask for advice. They are considering having more children. Neither of the parents have cystic fibrosis. What is the chance that their next child will be a carrier of the cystic fibrosis gene?

A.50%

B.100%

C.1 in 25

D.25%

E.66.6%

Answer:50%

Explanation:

As cystic fibrosis is an autosomal recessive condition there is a 50% chance that their next child will be a carrier of cystic fibrosis (i.e. be heterozygous for the genetic defect) and a 25% chance that the child will actually have the disease (be homozygous).

Question:

Which one of the following calcium channel blockers is most likely to precipitate pulmonary oedema in a patient with known chronic heart failure?

A.Amlodipine

B.Diltiazem

C.Felodipine

D.Verapamil

E.Nifedipine

Answer:Verapamil

Explanation:

Verapamil is the most highly negatively inotropic calcium channel blocker

Important for meLess important

Question:

A 10-year-old boy presents to the emergency department with his mother who is very concerned as she has noticed a non-blanching petechial rash on his arms and legs. The child has had a recent cold but today his observations are normal and he appears well otherwise.

What is the most likely diagnosis?

A.Haemolytic uraemic syndrome (HUS)

B.Henoch-Schönlein purpura (HSP)

C.Immune thrombocytopaenic purpura (ITP)

D.Meningitis

E.Non accidental injury

Answer:Immune thrombocytopaenic purpura (ITP)

Explanation:

ITP is a differential in any child presenting with petechiae and no fever

Important for meLess important

HUS is incorrect - HUS is associated with a triad of microangiopathic haemolytic uraemia, acute kidney injury and thrombocytopenia. The symptoms are typically bloody diarrhoea, abdominal pain, fever and vomiting, and the history usually includes exposure to farm animals. The child in the question hasn't experienced these symptoms so this diagnosis is unlikely.

HSP is incorrect - Features of HSP are typically a non-blanching rash affecting the legs and buttocks, arthralgia and abdominal pain. This child has presented with a non-blanching rash but not in the distribution of HSP and has not experienced any other symptoms of HSP. The child has presented with a typical history of ITP so a diagnosis of ITP is more likely.

ITP is correct - ITP is correct as it is a differential in any child presenting with petechiae and no fever and is usually preceded by a viral illness. We need blood results to confirm the diagnosis but these typically present with isolated thrombocytopenia and this low platelet count causes the classic petechial rash.

Meningitis is incorrect - Meningitis is a top differential for anyone presenting with a petechial rash but this child is well and has no fever so this diagnosis is unlikely.

Non-accidental injury is incorrect - NAI is an essential differential for any petechial rash but this rash is a good description of ITP. The question stem does not give any red flags for non-accidental injury but this should still be considered in practice.

Question:

A 78-year-old man presents with a 1-year history of worsening voiding-predominant lower urinary tract symptoms including poor flow, hesitancy and terminal dribbling. He has no red flag features.

His international prostate symptom score is 15. Prostate examination reveals a slightly enlarged, smooth prostate. His urine dipstick is normal. Bloods tests show normal renal function and a normal prostate-specific antigen level.

What is the most appropriate class of medication to consider starting for this patient?

A.5-alpha reductase inhibitors

B.Alpha-1 antagonists

C.Anti-muscarinic medication

D.GnRH analogues

E.Phosphodiesterase inhibitors

Answer:Alpha-1 antagonists

Explanation:

Alpha-1 antagonists are first-line in benign prostatic hyperplasia if the patient has troublesome symptoms

Important for meLess important

Alpha-1 antagonists are the most appropriate class of medication to consider starting in this patient as he has predominantly voiding symptoms. Alpha-1 agonists such as tamsulosin, alfuzosin are first-line for patients with moderate-to-severe voiding symptoms (IPSS ≥ 8). This patient's IPPS is 15 and he would likely benefit from this treatment for his troublesome symptoms.

5-alpha reductase inhibitors are indicated if the patient has a significantly enlarged prostate which this patient does not, they are therefore not appropriate currently for this patient.

Anti-muscarinic (anticholinergic) medication is appropriate if there is a mixture of storage symptoms and voiding symptoms that persist after treatment with an alpha-blocker alone. this patient only describes voiding symptoms and he is currently on no treatment, so this class is not currently indicated.

GnRH analogues are widely used in prostate cancer, however, after previously being investigated as a potential treatment for benign prostatic hypertrophy, it was apparent the side effect profile outweighed any clinical improvement. Therefore inappropriate in this case.

Phosphodiesterase inhibitors are widely used in erectile dysfunction but not in the management of benign prostatic hypertrophy.

Question:

A 37-year-old phlebotomist attends occupational health for advice following a needlestick injury this morning. She received this whilst inserting a cannula during a major haemorrhage. The patient is a known IV drug user but has no blood tests on record showing the status of any blood-borne viruses.

The occupational health physician counsels her on the need to test for various blood-borne viruses, including HIV.

What should she be told about the tests needed for HIV screening?

A.Antibody testing only in 3 months time

B.Viral load testing only in 3 months time

C.p24 antigen and antibody testing in 4 weeks time and in 3 months time

D.p24 antigen, antibody testing and viral load today, in 4 weeks time and in 3 months time

E.p24 antigen in 1 week time and in 3 months time

Answer:p24 antigen and antibody testing in 4 weeks time and in 3 months time

Explanation:

Combination tests (HIV p24 antigen and HIV antibody) are now standard for the diagnosis and screening of HIV

Important for meLess important

There are multiple different tests used in the screening of HIV. Antibody testing may be positive at 4 weeks post-insult and will be positive by 3 months if there is an infection. p24 (antigen) testing may be positive at 1-week post-insult and will be positive by 4 weeks if there is an infection. Viral load (RNA levels) is used to track the progression of the disease and response to treatment - it is not normally used for screening unless there is a high suspicion of being positive.

The gold standard for screening is to do a combined HIV test (p24 antigen and antibody), both at 4 weeks (the earliest both tests may show a positive result) and at 3 months (the earliest both tests will definitely show a positive result). Therefore, p24 antigen and antibody testing in 4 weeks time and in 3 months time is the correct answer.

Antibody testing only in 3 months time is incorrect. Whilst this is when antibodies will definitely be positive, p24 also needs to be tested too, and offering an earlier testing date too (i.e. in 4 weeks) helps to relieve patient anxiety.

Viral load testing only in 3 months time is incorrect. This is not used for screening, and should only be tested if high clinical suspicion of infection, or test results indicating this.

p24 antigen, antibody testing, and viral load today, in 4 weeks time and in 3 months time is incorrect. Whilst the combined testing aspect of this is correct, the viral load does not need to be tested and is not regularly done.

p24 antigen in 1 week time and in 3 months time is incorrect. Whilst this is the earliest time that p24 antigen may be positive, HIV antibody should also be tested for.

Question:

A 33-year-old woman comes to see you as she was prescribed prophylactic treatment for her migraines by her old GP. These migraines use to happen 1-2 times a week. However since she started the medication they have been reduced to 1-2 times a month. She says she has just discovered that she is pregnant and is very worried about her child having a birth defect.

Which one of the following medications is given for migraine prophylaxis and is also linked to congenital abnormalities such as cleft lip and palate?

A.Propranolol

B.Zolmitriptan

C.Topiramate

D.Combined oral contraceptive pill

E.Sumatriptan

Answer:Topiramate

Explanation:

Migraine prophylaxis should be offered if people are experiencing more than 2 migraine attacks a month. Propranolol and topiramate are both used for migraine prophylaxis. However, propranolol should be used in preference to topiramate in women of child-bearing age as topiramate is associated with risk of cleft lip/cleft palate in infants if used in the first trimester of pregnancy.

The combined oral contraceptive pill is not usually prescribed for migraines and if a patient is using this and falls pregnant it will not cause any harm to the foetus.

Triptan medication such as sumatriptan and zolmitriptan are used for the acute treatment of migraines and patients should be advised to take these as soon as a migraine starts. They may also be used in prophylaxis of menstrual migraines, however should also be avoided in pregnancy due to limited data about their safety.

Question:

A 77-year-old male complains of bilateral buttock pain that radiates through his thighs and calves. Pain is exacerbated by standing and ambulation. He is unable to walk for more than 10 minutes or 2 to 3 blocks due to pain. The pain is relieved by forward flexion of spine or sitting. No history of any bladder and/or bowel dysfunction. Motor and sensory neurological examination of lower limbs is within normal limits.

Which of the following conditions is the most likely cause of these findings?

A.Cauda equina syndrome

B.Lumbar spinal stenosis

C.Lumbar spondylolisthesis

D.Peripheral arterial disease (PAD)

E.Ankylosing spondylitis (AS)

Answer:Lumbar spinal stenosis

Explanation:

Spinal stenosis is a key differential in a patient who presents with claudication

Important for meLess important

This is a classical presentation of stenosis of the lumbar spine. Symptoms most strongly associated with lumbar spinal stenosis are severe lower extremity pain, and absence of pain when the spine is in a flexed position. The onset of symptoms during ambulation is believed to be caused by increased metabolic demands of compressed nerve roots that have become ischemic due to stenosis. This is the hallmark of neurogenic claudication.

Cauda equina syndrome is incorrect. It is caused by compression of the nerves, causing one or more of the following symptoms: bladder and/or bowel dysfunction, reduced sensation in the saddle area, and sexual dysfunction, with possible neurological deficit in the lower limb.

Lumbar spondylolisthesis is incorrect. Here, low back pain is the usual symptom, and it is often exacerbated by movement, particularly lumbar extension and twisting. The radiation of pain into the buttocks is not uncommon. However, it is more seen during the growth spurt in late childhood and early adolescence, probably due to increased physical activity.

Peripheral arterial disease (PAD) is incorrect. In PAD, vascular claudication, or pain in the legs while walking, is caused by insufficient blood flow. It may be confused with neurological claudication. While the differences in these two conditions are so delicate, a closer look can help determine which case a patient is suffering. While neurogenic claudication can appear after varying amounts of exercise as well as while standing or even coughing, vascular claudication can start predictably after a fixed amount of exercise and is rarely produced at rest. Another major difference between the two is how relief from the pain can be achieved. With neurogenic claudication, relieving the pain can be slow and variable and further helped by sitting or stooping. Relief by simply standing is rarely achieved and can even aggravate the pain. On the other hand, vascular claudication can be relieved by simply standing in place, often very quickly.

Ankylosing spondylitis (AS) is a wrong answer because the symptoms usually present with an insidious onset over several months to years and it is usually presented before the age of 30 years. Systemic features like fever and weight loss are common and morning stiffness is characteristic of AS.

Question:

A 45-year-old man presents to the emergency department with a 25-minute history of complete hearing loss in his right ear. The hearing loss had happened suddenly whilst he was walking to work this morning. He feels otherwise well.

On examination, Weber's test localises to the left ear, whilst Rinne's test is positive bilaterally.

Which of the following is the most likely cause of his presentation?

A.Idiopathic cause

B.Meniere's disease

C.Perforated tympanic membrane

D.Vestibular schwannoma

E.Wax impaction

Answer:Idiopathic cause

Explanation:

The majority of sudden-onset sensorineural hearing loss is idiopathic in nature

Important for meLess important

This scenario describes a middle-aged man with sudden onset hearing loss in his right ear, with examination demonstrating a right sensorineural hearing loss. This is likely sudden-onset sensorineural hearing loss, of which an idiopathic cause is the most common cause. Patients are often treated with high-dose corticosteroids, and some can make a fast recovery.

Meniere's disease is not the correct answer. Meniere's disease is a relatively common condition that often causes a classical triad of hearing loss, vertigo, and tinnitus. Episodes often comprise of the symptoms all onsetting at the same time, lasting for minutes to hours, and then resolving. Occasionally, episodes can take several days to fully recover. Given that this patient reports no symptoms other than sudden hearing loss, the diagnosis of Meniere's is less likely.

A perforated tympanic membrane is not correct. Perforation of the tympanic membrane can commonly occur following trauma and can present with pain in the associated ear. On examination, conductive hearing loss will typically be found. As the above patient does not describe a history of trauma or pain, and the examination shows a sensorineural hearing loss, a perforated tympanic membrane is an unlikely cause.

Vestibular schwannoma is incorrect. Whilst a vestibular schwannoma can cause unilateral sensorineural hearing loss (as seen in this patient), it typically presents with a progressive worsening of hearing and tinnitus. Whilst the patient in the scenario will likely need an MRI head to rule out a vestibular schwannoma, the majority of sudden-onset sensorineural hearing loss is idiopathic, and therefore an idiopathic cause is the correct answer.

Wax impaction is not the correct answer. Wax impaction is an extremely common cause of hearing loss, however, this would present with conductive hearing loss in the affected ear as the external auditory canal is blocked.

Question:

A 56-year-old woman has hardened skin on her face and below her elbows. The skin above her elbows is normal. She is also known to have a long-standing history of Raynaud’s phenomenon.

What is the most likely diagnosis?

A.Psoriasis

B.Limited cutaneous systemic sclerosis

C.Dermatomyositis

D.Sclerodactyly

E.Systemic lupus erythematosus

Answer:Limited cutaneous systemic sclerosis

Explanation:

Limited cutaneous systemic sclerosis - cutaneous sclerosis limited to below elbows

Important for meLess important

Limited cutaneous systemic sclerosis is a subtype of systemic sclerosis characterised by scleroderma which predominantly affects the face and distal limbs.

Diffuse cutaneous systemic sclerosis affects the trunk and proximal limbs predominately.

Sclerodactyly refers to cutaneous sclerosis of the fingers or toes only. Dermatomyositis and systemic lupus erythematosus are inflammatory conditions which do not typically cause hardening of the skin. Psoriasis is a skin condition that causes red, flaky patches of skin covered with silvery scales.

Question:

A 29-year-old man presents to the emergency department with diarrhoea for the last 2 days. He is opening his bowels around 3 times a day. The stool is loose but formed, brown in colour with occasional small amounts of blood. On examination, he has mild tenderness in the left iliac fossa, with no peritonism. Bowel sounds are normal. He is apyrexial and otherwise appears well.

Three weeks ago he had a colonoscopy for investigation for potential inflammatory bowel disease. The results read 'erythema and mucosal oedema extending from the rectum up to the splenic flexure consistent with ulcerative colitis'.

What is the most appropriate management option?

A.Oral aminosalicylates

B.Oral steroids

C.Oral steroids and oral aminosalicylates

D.Rectal aminosalicylates

E.Rectal steroids

Answer:Rectal aminosalicylates

Explanation:

In a mild-moderate flare of distal ulcerative colitis, the first-line treatment is topical (rectal) aminosalicylates

Important for meLess important

This patient has ulcerative colitis, and has presented with a flare of his symptoms. Using the Truelove and Witts severity score this would be characterised as a mild flare - given that he is passing stool less than 4 times a day, and with only a small amount of blood.

From his endoscopy findings we know his ulcerative colitis is confined to the left side of the colon. Therefore topical therapies should be sufficient as initial management. This leaves us the options of topical aminosalicylates or topical steroids.

For distal colitis, rectal aminosalicylates have been shown to be superior to rectal steroids and oral aminosalicylates for treating mild-moderate colitis. If remission was not achieved by 4 weeks of therapy the next step is usually to add an oral aminosalicylate.

Question:

A 48-year-old male with a long standing history of dyspepsia and pain several hours after eating is found to have a peptic ulcer. He presents with a brisk haematemesis with fresh red blood. Which blood vessel is most likely responsible?

A.Splenic

B.Gastroduodenal

C.Right gastric

D.Left gastric

E.Left gastroepiploic

Answer:Gastroduodenal

Explanation:

Gastroduodenal artery is at risk with duodenal ulcers on the posterior wall

Important for meLess important

The classical history of pain several hours after eating is more characteristic of a duodenal ulcer as opposed to a gastric ulcer.

Posteriorly sited duodenal ulcer are most likely to cause major upper GI haemorrhage and the offending artery is the gastroduodenal artery as it travels behind the second part of the duodenum.

Question:

A 48-year-old man presents to his GP with a number of symptoms that have come on over the past few days. His vision is blurred and his right eye is painful, as well as having a generalised headache.

On examination, the right eye has deviated inferiorly and laterally. There is visible ptosis of the upper right lid, and the pupil is dilated. It does not respond to light. This eye does not follow movements well, but the left eye appears unaffected and is normal upon testing.

Where is the most likely location of the lesion?

A.Anterior cerebral artery

B.Internal carotid artery

C.Medulla

D.Oculomotor nucleus

E.Posterior communicating artery

Answer:Posterior communicating artery

Explanation:

Painful third nerve palsy = posterior communicating artery aneurysm

Important for meLess important

The correct answer is posterior communicating artery. The cluster of symptoms described here points towards a third (oculomotor) nerve palsy, with the eye classically deviated 'down and out' and the presence of ptosis. The presence of pupil dilation and pain points towards a compressive lesion. This is most commonly a posterior communicating artery aneurysm and requires urgent intervention.

The anterior cerebral artery is incorrect. This does not have a direct physical relationship to the oculomotor nerve and would be very unlikely to present with these signs and symptoms.

The internal carotid artery runs through the cavernous sinus alongside the oculomotor nerve. An aneurysm of this can compress the nerve; however, aneurysms of the posterior communicating artery are more likely to do so.

The medulla is not relevant to this presentation. Several cranial nerves arise from the medulla - the oculomotor nerve does not.

The oculomotor nerve arises from the oculomotor nucleus of the midbrain. A lesion here would be unlikely to cause a painful palsy.

Question:

An 82-year-old woman is being reviewed on the ward following a total hip replacement. She fell from a standing height while vacuuming her living room and was brought via ambulance with a shortened, externally rotated left leg. Her hip x-ray confirmed a neck of femur fracture, and she was promptly operated on. There is a past medical history of mild knee osteoarthritis and type II diabetes mellitus.

She has been in the hospital for 3-days, is weight-bearing, and is fit for discharge. Calcium and vitamin D supplementation has been initiated.

What is the next best step in this patient's management?

A.Arrange a DEXA scan

B.Arrange a skeletal survey

C.Commence alendronate

D.Commence raloxifene

E.Commence strontium ranelate

Answer:Commence alendronate

Explanation:

Following a fragility fracture in women ≥ 75 years, a DEXA scan is not necessary to diagnose osteoporosis and hence commence a bisphosphonate

Important for meLess important

Commence alendronate is correct. The patient in the vignette has had a fragility fracture (a fracture sustained from falling from a standing height or lower without any preceding trauma such as a blow to the leg). As she is older than 75 and has had a fragility fracture, a DEXA scan is not required to diagnose osteoporosis, and bisphosphonates can be started immediately for bone protection. The first-line bisphosphonate is alendronate.

Arrange a DEXA scan is incorrect. A DEXA scan (dual-energy x-ray absorptiometry scan) is performed for elderly men and women to determine their bone mineral density (BMD). The BMD can then be used to calculate a patient's FRAX score and 10-year-risk of fractures. As the patient in the vignette has had a fragility fracture and is over 75, she does not need a DEXA scan. This is because she already has a high risk of fragility fractures and must be started on bisphosphonates immediately. The DEXA scan will not change her management.

Arrange a skeletal survey is incorrect. A skeletal survey is a series of systematic radiographs to screen for bone pathology. Example conditions where this may be indicated are multiple myeloma, Paget's disease, and hyperparathyroidism. There is no evidence of any signs or symptoms correlating with these conditions, therefore at this moment in time, a skeletal survey is not necessary.

Commence raloxifene is incorrect. Raloxifene is a selective oestrogen receptor modulator (SERM) shown to reduce the risk of vertebral fractures but not non-vertebral fractures. This is a second-line treatment for osteoporosis. The patient in the vignette has had a neck of femur fracture and should initially be trialled on alendronate.

Commence strontium ranelate is incorrect. Strontium ranelate is considered a dual-action bone agent and works by inhibiting osteoclast activity and preventing osteoblast activity. It is a second-line treatment option for osteoporosis. A specialist in secondary care should commence it due to concerns over its safety (increased risk of cardiovascular and thromboembolic events). The patient in the vignette has had a fragility fracture and should initially be trialled on alendronate.

Question:

A 45-year-old man presents with a history of severe, episodic bilateral leg pain. This is not related to the amount of exercise he does and is often not relieved with rest. After a referral to specialist care, a diagnosis of thromboangiitis obliterans (Buerger's disease) is made.

Which of the following risk factors is most strongly associated with this condition?

A.Alcohol misuse

B.Diabetes mellitus

C.Female sex

D.Tobacco use

E.Age >55 years

Answer:Tobacco use

Explanation:

Thromboangiitis obliterans (Buerger's disease) is strongly associated with smoking

Important for meLess important

Buerger's disease is classically associated with tobacco use. The exact cause of Buerger’s disease is unknown, however, almost all cases of the disease have been linked with smoking.

There has been no association made between Buerger's disease and diabetes mellitus or alcohol misuse. It is often more common to see middle-aged males (40-45 years old) present with this condition.

Question:

A 68-year-old man presents to his general practitioner with a 3-month history of haemoptysis, weight loss, and fatigue. His past medical history is significant for gout, depression, and type 2 diabetes mellitus. He has no risk factors for tuberculosis.

On further questioning, the patient drinks 4 units of alcohol a week and has never smoked tobacco.

The patient is referred for a chest x-ray, showing right-sided atelectasis and hilar lymphadenopathy. Subsequent imaging and biopsy confirm the diagnosis of non-small cell lung cancer.

What is the most likely histological subtype?

A.Adenocarcinoma

B.Carcinoid tumour

C.Large cell carcinoma

D.Small cell carcinoma

E.Squamous cell carcinoma

Answer:Adenocarcinoma

Explanation:

Adenocarcinoma accounts for the majority of lung cancer cases in non-smokers

Important for meLess important

Adenocarcinoma is correct. This patient is a non-smoker, and adenocarcinoma is the most common histology in this group. The patient's atelectasis and hilar lymphadenopathy are nonspecific findings present in a variety of lung cancer histologies.

Carcinoid tumour is incorrect, as this is less common than adenocarcinoma is non-smokers. Carcinoid tumours may present with carcinoid syndrome, characterised by flushing, diarrhoea, and episodes of dyspnoea. Urinary 5-Hydroxyindoleacetic Acid (5-IAA) levels may be used to screen for carcinoid syndrome.

Large cell carcinoma is incorrect, as this is a rare histological subtype of lung cancer and is less likely than adenocarcinoma in a non-smoker. Large cell carcinoma is a diagnosis of exclusion if lung cancer histology is not in keeping with adenocarcinoma, small cell carcinoma, or squamous cell carcinoma.

Small cell carcinoma is incorrect, as this is almost exclusively diagnosed in patients who smoke tobacco. Small cell carcinomas are very rarely diagnosed in non-smokers and may be associated with paraneoplastic syndromes, including the syndrome of inappropriate ADH (SIADH) and Cushing's syndrome.

Squamous cell carcinoma is incorrect, as this is less likely than adenocarcinoma in a non-smoker. Squamous cell carcinoma of the lung is classically associated with paraneoplastic hypercalcaemia, as the tumour may release parathyroid hormone-related protein (PTHrP).

Question:

A 50-year-old man who admitted to the hospital with a community acquired pneumonia has been anuric for the last 6 hours. Blood tests taken show:

Urea 13.2 mmol/L (baseline 6.0 mmol/L)

Creatinine 198 µmol/L (baseline 90 µmol/L)

His current medications include:

Aspirin 75mg PO OD

Atorvastatin 80mg PO OD

Clopidogrel 75mg PO OD

Lithium 300mg PO OD

Paracetamol 1g PO QDS

What is the most appropriate next step in the management of this patient?

A.Stop aspirin

B.Stop atorvastatin

C.Stop clopidogrel

D.Stop lithium

E.Stop paracetamol

Answer:Stop lithium

Explanation:

This medication may have to be stopped in AKI as increased risk of toxicity (but doesn't usually worsen AKI itself) - lithium

Important for meLess important

Stopping lithium is the correct answer here, because as it is not metabolised and is almost entirely eliminated by the kidneys, serum lithium levels are sensitive to physiological factors that affect renal function, such as AKI, so there may be an increased risk of toxicity in this case if not stopped. It usually doesn't worsen the AKI itself, though it is known to produce partial distal renal tubular acidosis.

Drugs that cause direct nephrotoxicity should be stopped during an AKI. Other agents that aren't directly nephrotoxic but are renally excreted may need dose modification as their blood levels may build up, causing subsequent toxicity.

Low-dose aspirin for the secondary (or primary) prevention of cardiovascular disease has been found to be safe to continue in an AKI, so stopping it is the incorrect answer here.

Stopping atorvastatin is incorrect as statins are mainly excreted via the liver, not the kidneys. They are usually safe to continue in AKI. However, if the AKI is due to rhabdomyolysis, or the patient develops unexplained or persistent muscle pains, they may need to be stopped.

Stopping clopidogrel, an antiplatelet drug, is incorrect as it has been found to be safe to continue in AKI.

Paracetamol, though an inhibitor of COX enzymes, has a major mechanism of action and effects that are quite different to those of NSAIDs, so it does not have quite the same effect on glomerular autoregulation. Therefore, stopping it is the incorrect answer here as it can safely be continued during AKI.

Question:

A 65-year-old woman presents with vomiting and anuria. She has a background of chronic kidney disease secondary to diabetes mellitus. Her most recent glomerular filtration rate was 33 ml/min/1.73 m2. Admission blood tests are as follows:

Na+ 144 mmol/L (135 - 145)

K+ 7.1 mmol/L (3.5 - 5.0)

Bicarbonate 17 mmol/L (22 - 29)

Urea 21.0 mmol/L (2.0 - 7.0)

Creatinine 350 µmol/L (55 - 120)

Despite treatment with calcium gluconate, calcium polystyrene sulphonate (Calcium Resonium®), glucose, insulin and salbutamol her potassium remains elevated. She is referred for urgent haemodialysis.

Which one of the treatments that she has received so far acts to remove potassium from her body?

A.Calcium gluconate

B.Calcium polystyrene sulphonate (Calcium Resonium®)

C.Glucose

D.Insulin

E.Salbutamol

Answer:Calcium polystyrene sulphonate (Calcium Resonium®)

Explanation:

Calcium resonium results in removal of potassium from the body, rather than shifting potassium between fluid compartments in the short-term

Important for meLess important

The patient has been started on many medications here. However, calcium polystyrene sulphonate (Calcium Resonium®) is the only medication which actively lowers the total body potassium through increasing excretion. Calcium polystyrene sulphonate is a form of artificial resin (hence Resonium) which causes the removal of potassium from the body. Calcium and sodium cations are exchanged for hydrogen ions in the stomach. These hydrogen ions are then exchanged for potassium ions in the large intestine and the potassium ions are excreted from the bowel as part of the resin complex.

Calcium carbonate protects the heart from arrhythmia. Calcium carbonate is an important agent in hyperkalemia, particularly where there are ECG changes, however, it has no effect on potassium levels.

Salbutamol causes an intracellular shift of potassium inside cells but does not change the total body content of potassium.

Insulin reduces potassium ions in intravascularly in the same way as salbutamol but again does not reduce the total body content of potassium.

Glucose is given to prevent hypoglycaemia but does not directly reduce potassium.

Question:

A 24-year-old man presents with a two day history of a red right eye. When he woke up this morning his right eye was 'stuck together'. Pupils are equal and reactive and the visual acuity is 6/5 in both eyes when viewing a Snellen chart.

Of the following management options, which one is the most appropriate?

A.Topical sodium cromoglicate

B.Oral flucloxacillin

C.Oral non-sedating antihistamine

D.Topical chloramphenicol

E.Immediate referral to ophthalmology

Answer:Topical chloramphenicol

Explanation:

This patient has infective conjunctivitis. Another option would be to not treat and review if not improving. The unilateral nature of the symptoms makes a diagnosis of allergic conjunctivitis less likely.

Question:

A 35-year-old woman with amyotrophic lateral sclerosis attends a meeting with her clinical team to review her progress. It is noted that she has been losing weight and is more tired than usual. She reports having difficulty chewing and swallowing food, even if it has been mashed or puréed.

What long-term management option is best for this patient?

A.Continue with her current dietary regimen

B.Initiate total parenteral nutrition

C.Insert a nasogastric tube

D.Insert a percutaneous gastrostomy tube

E.Insert a percutaneous jejunostomy tube

Answer:Insert a percutaneous gastrostomy tube

Explanation:

Percutaneous gastrostomy tube (PEG) is the preferred way to support nutrition in patents with motor neuron disease

Important for meLess important

The correct answer is to insert a percutaneous gastronomy (PEG) tube. Patients with motor neurone disease (MND) may eventually require nutritional support if they struggle to feed themselves. An individual may initially benefit from having smaller meals and taking longer to eat them, and then making the consistency of the food more liquid-like, but this patient is struggling even with softer food. Therefore, a definitive long-term management option for this patient would be a PEG tube.

The other options are incorrect:

Continuing with her current diet regimen is incorrect as the patient is struggling with chewing and swallowing even soft food and is suffering from poor nutrition. There is a risk that she may aspirate alongside the risk of losing further weight, and so a change must be made.

Initiating total parenteral nutrition is incorrect as this is very much a last-resort measure used when there is poor functioning of the digestive tract, such as impaired nutrient absorption.

Inserting a nasogastric tube is incorrect, as although it is an appropriate way to deliver nutrition, it must be removed after 4-6 weeks to avoid adverse effects such as ulceration.

Inserting a percutaneous jejunostomy tube is incorrect. Although a jejunostomy tube is very similar to a gastrostomy tube (except for its placement site), it is much less commonly used and is harder to maintain than a PEG tube.

Question:

A 60-year-old woman presents to her GP with three weeks of pain in the right groin, worse on walking, which she has been controlling with paracetamol until recently. She does not report any history of trauma to the area.

She has a history of asthma with recurrent severe exacerbations and alcohol use disorder.

An x-ray is requested:

© Image used on license from Radiopaedia

What is the most likely cause of her condition based on these findings?

A.Corticosteroids

B.Fracture of the neck of the femur

C.Metastatic breast cancer

D.Osteopenia

E.Systemic lupus erythematosus

Answer:Corticosteroids

Explanation:

The correct answer is corticosteroids. This patient has avascular necrosis, which is seen on the hip x-ray as irregular borders of the articular surface with sclerosis of the femoral head. Avascular necrosis results from a decreased blood supply to an area of bone, where ischaemic necrosis breaks down the marrow and there is a resulting collapse of the cortex. Three risk factors exist in this case for avascular necrosis including the use of oral steroids for the treatment of recurrent asthma attacks, alcoholism, and age.

The risk of steroid-induced avascular necrosis is greatest when high doses of glucocorticoids are given for a longer period, which has likely been true for this patient and is probably the driving force behind her condition. The molecular pathogenesis of steroid-induced avascular necrosis is not well understood but is likely to be related to the tendency of steroids to cause osteoporosis as well. Avascular necrosis is often asymptomatic at the early and middle stages of the disease process. Later in the disease course, patients will present with buttock or groin pain and reduced mobility.

A fracture of the neck of the femur is unlikely to be the cause of this patient's pain. A fractured neck of the femur can cause avascular necrosis over time if the blood supply to the femoral head is disrupted, however, the risk factors in the patient's history point towards a non-traumatic cause. The adult femoral head receives blood supply from the medial and lateral circumflex arteries, which branch from the deep femoral artery.

Metastatic breast cancer is incorrect. Bone is the most common site for breast cancer metastases, and the hip joint can be affected by these causing pathological fractures. However, the x-ray appearance for breast cancer metastasis would be more likely to show one or more localised lytic, sclerotic, or mixed lesions. The history and x-ray shown here are more consistent with steroid-induced avascular necrosis, and also the patient has no known history of breast cancer.

Osteopenia is incorrect. This is a loss of bone density with a bone densitometry T-score between -1 and -2.5 and is the precursor for osteoporosis. Loss of bone density is a risk factor for fracture, and this patient’s risk factors are more suggestive of a non-traumatic cause of her avascular necrosis.

Systemic lupus erythematosus is incorrect. While this autoimmune condition can cause avascular necrosis that would give a similar appearance on an x-ray, the patient has no other features of systemic lupus erythematosus to suggest that it is the most likely cause. Given the history of recurrent asthma attacks, it is more likely that she has been using corticosteroids regularly and this is therefore the more probable cause.

Question:

A 29-year-old woman attends a routine clinical review. She is 25 weeks into her first pregnancy. She describes that she has been feeling more tired over the past four months, during which time she has gained 3kg in weight. She has no significant past medical history. Her mother suffers from Crohn's disease.

Her thyroid function tests are shown below:

TSH 0.7mIU/L (0.5 - 5.0)

Total T3 3.1nmol/L (0.9 - 2.5)

fT3 4.3pmol/L (3.1 - 6.8)

Total T4 195nmol/L (50 - 160)

fT4 16.0pmol/L (12 - 22)

What is the most likely explanation for these results?

A.Hyperthyroidism

B.Hypothyroidism

C.Normal pregnancy

D.Subclinical hyperthyroidism

E.Subclinical hypothyroidism

Answer:Normal pregnancy

Explanation:

Raised total T3 and T4 but normal fT3 and fT4 suggest high concentrations of thyroid binding globulin, which can be seen during pregnancy

Important for meLess important

The correct answer is normal pregnancy. This patient has a normal TSH, with normal fT3 and fT4 levels, suggesting normal thyroid function. The elevated levels of total T3 and T4 can be explained by the high concentrations of thyroid-binding globulin that are often seen during pregnancy. Although the patient has reported some fatigue and minor weight gain, these symptoms are non-specific in the context of pregnancy and do not necessarily point towards thyroid dysfunction.

Hyperthyroidism is incorrect. This would be associated with an abnormally suppressed TSH and raised levels of fT3 and fT4.

Hypothyroidism is incorrect. Although the patient's symptoms are seen in many patients with hypothyroidism, this would tend to be associated with a raised TSH and decreased fT3 and fT4.

Subclinical hyperthyroidism is incorrect. This would tend to be characterised by an isolated suppressed TSH, with normal fT3 and fT4 and an absence of symptoms of thyroid dysfunction.

Subclinical hypothyroidism is incorrect. This would normally present with an isolated elevated TSH, with normal fT3 and fT4.

Question:

A 31-year-old female presents to the antenatal clinic for a booking appointment. Which of the following should be identified as a risk factor for pre-eclampsia?

A.Her age (31 years old)

B.1 previous successful pregnancy

C.Body mass index of 29kg/m^2

D.History of smoking

E.Pre-existing renal disease

Answer:Pre-existing renal disease

Explanation:

The following are risk factors that should be determined:

Aged 40 years or older

Nulliparity

Pregnancy interval of more than 10 years

Family history of pre-eclampsia

Previous history of pre-eclampsia

Body mass index of 30kg/m^2 or above

Pre-existing vascular disease such as hypertension

Pre-existing renal disease

Multiple pregnancy

Source: NICE (https:www.nice.org.uk/guidance/CG62/chapter/1-Guidance#screening-for-fetal-anomalies).

Question:

A 76-year-old patient is admitted to the acute geriatrics ward with a urinary tract infection. You are bleeped during the night as the patient is confused and restless and the ward staff feel she is a risk to herself.

She has a past medical history of Parkinson's disease and hypertension and she had a myocardial infarction 3 years ago. She takes co-careldopa, amlodipine, telmisartan, aspirin, and atorvastatin. She is currently on her third day of nitrofurantoin.

Non-pharmacological options have been unsuccessful and no immediately reversible causes have been identified.

What is the most appropriate pharmacological option to treat this patient's delirium?

A.Intramuscular haloperidol

B.Intramuscular lorazepam

C.Oral haloperidol

D.Oral lithium

E.Oral risperidone

Answer:Intramuscular lorazepam

Explanation:

Typical antipsychotics should be avoided in delirious patients with a background of Parkinson's disease

Important for meLess important

The correct answer is lorazepam, a benzodiazepine. If a patient is presenting with signs and symptoms of delirium, a full workup is required to find the underlying cause. In up to 30% of cases, no cause is found (SIGN). Treat any acute, severe cause e.g. sepsis, hypoxia, hypoglycaemia, medication toxicity. Environmental and non-pharmacological measures should be used before pharmacological management is initiated, however, if symptoms threaten the safety of the patient or others, pharmacological management should be considered. The first-line option is usually oral haloperidol, or IM haloperidol if oral is not possible. In this scenario, the patient has Parkinson's disease, so haloperidol is contraindicated and risperidone is only used with caution. This makes the most appropriate option a benzodiazepine. This should be given orally if possible but IV or IM are alternatives in the likely event that the patient will not take oral medications at this time.

IM haloperidol is usually an option for managing acute delirium when non-pharmacological options have been exhausted but it is contraindicated in Parkinson's disease so it should be avoided in this scenario.

Oral haloperidol should also be avoided due to its contraindication in Parkinson's disease. It is, however, usually the first-line pharmacological agent for the management of acute delirium if the patient is a risk to themselves or others and has no contraindications.

Lithium is a mood stabiliser used to treat mania and bipolar disorder. It is not used to treat acute delirium.

Risperidone is an atypical antipsychotic which is used with caution in Parkinson's disease as it can exacerbate symptoms, so it is not the most appropriate drug in this scenario. In patients without Parkinson's, it may be appropriate to use risperidone in low doses to manage agitation.

Question:

A 19-year-old woman attends her booking appointment after recently finding out she is pregnant for the first time. She has no past medical history and no family history. Her BMI is 30.9kg/m², her blood pressure is normal, and a urine dipstick is unremarkable. She does not smoke or drink alcohol.

What investigation should she be offered?

A.Fasting blood glucose test at 20 weeks

B.Immediate capillary blood glucose test

C.Immediate oral glucose tolerance test (OGTT)

D.Oral glucose tolerance test (OGTT) at 20-24 weeks

E.Oral glucose tolerance test (OGTT) at 24-28 weeks

Answer:Oral glucose tolerance test (OGTT) at 24-28 weeks

Explanation:

All obese (BMI>30) women should be screened for gestational diabetes with an oral glucose tolerance test (OGTT) at 24-28 weeks

Important for meLess important

Oral glucose tolerance test (OGTT) at 24-28 weeks is correct. Women with a BMI of >30 are at greater risk of developing gestational diabetes and thus should be offered a screening OGTT. The time frame of 24-28 weeks is representative of the increased insulin resistance which starts at 24 weeks gestation and would therefore lead to an increase in blood glucose.

Fasting blood glucose test at 20 weeks is incorrect. The preferred test for gestational diabetes is the oral glucose tolerance test.

Immediate capillary blood glucose test is incorrect. However, in women who have previously had gestational diabetes, early self-monitoring of blood glucose can be offered instead of the OGTT.

Immediate oral glucose tolerance test (OGTT) is incorrect. The OGTT is the preferred test, however, it is offered for between 24-28 weeks.

Oral glucose tolerance test (OGTT) at 20-24 weeks is incorrect. The OGTT is the preferred test, however, it is offered for between 24-28 weeks.

Question:

A 29-year-old lady is in labour with her first child. However, during the second stage, fetal distress is identified and instrumental delivery considered. Which of the following would be a contraindication to this procedure?

A.Bladder empty

B.Cephalic presentation

C.Cervix fully dilated

D.Head palpable abdominally

E.Ruptured membranes

Answer:Head palpable abdominally

Explanation:

Instrumental delivery allows the use of traction if delivery needs to be expedited during the second stage of labour to prevent fetal and maternal morbidity. Common indications include a prolonged active second stage, maternal exhaustion, fetal distress, breech presentation and prophylactic use in medical conditions e.g. cardiovascular disease, hypertension. It can also be used to rotate a malpositioned fetal head.

The requirements for instrumental delivery can be easily remembered by the mnemonic FORCEPS:

Fully dilated cervix generally the second stage of labour must have been reached

OA position preferably OP delivery is possible with Keillands forceps and ventouse. The position of the head must be known as incorrect placement of forceps or ventouse could lead to maternal or fetal trauma and failure

Ruptured Membranes

Cephalic presentation

Engaged presenting part i.e. head at or below ischial spines the head must not be palpable abdominally

Pain relief

Sphincter (bladder) empty this will usually require catheterization

N.B. There must also be a clear indication for instrumental delivery

Question:

A 25-year-old women presented to the emergency department 3 weeks ago after she had coughed up blood. She underwent investigation and was diagnosed with pulmonary tuberculosis and was started on an antibiotic regime which included rifampicin and isoniazid.

She works as a vet. Her mother was diagnosed with polycystic kidney disease aged 45. She takes no medication other than the combined oral contraceptive pill.

She presents 3 weeks later with fever and rash. Investigations are performed including serum urea and electrolytes.

Na+ 140 mmol/L (135 - 145)

K+ 3.9 mmol/L (3.5 - 5.0)

Bicarbonate 29 mmol/L (22 - 29)

Urea 10.3 mmol/L (2.0 - 7.0)

Creatinine 193 µmol/L (55 - 120)

What is the most likely cause of renal dysfunction in this patient?

A.Antibiotic use

B.Combined oral contraceptive pill use

C.Exposure to cattle

D.Family history of polycystic kidney disease

E.Renal tuberculosis

Answer:Antibiotic use

Explanation:

Acute interstitial nephritis is classically caused by antibiotic use

Important for meLess important

The patient presents with typical symptoms of acute interstitial nephritis: fever and rash. Eosinophilia would likely be found on blood tests.

The most commonly identified cause of this condition is medication. Most cases resolve when the offending medication is stopped. Medications including penicillin, rifampicin, NSAIDs, allopurinol and furosemide have been linked with acute interstitial nephritis.

The combined oral contraceptive pill has not been linked with acute interstitial nephritis. It is however associated with venous thromboembolism.

Exposure to animals is not a risk factor for acute interstitial nephritis.

Polycystic kidney disease is inherited in an autosomal dominant pattern but it would not cause acute interstitial nephritis. Some systemic diseases such as lupus and Sjögren's syndrome have an inherited component and these conditions would predispose the patient to acute interstitial nephritis.

Renal tuberculosis is rare but could potentially cause acute interstitial nephritis. However, it is far more likely that acute interstitial nephritis is caused by a recently started medication.

Question:

Which one of the following side-effects is not recognised in patients taking sodium valproate?

A.Alopecia

B.Weight gain

C.Hepatitis

D.Induction P450 system

E.Teratogenicity

Answer:Induction P450 system

Explanation:

Sodium valproate causes inhibition of the P450 system

Question:

A 70 year-old man complains of numbness in his feet bilaterally and is finding it difficult to walk. On examination he has normal pain and temperature sensation in his lower limbs, but decreased appreciation of light touch and proprioception.

Which of the following is the most likely site of a neurological lesion?

A.Spinocerebellar tracts

B.Dorsal horn

C.Lateral spinothalamic tracts

D.Lateral corticospinal tracts

E.Dorsal column

Answer:Dorsal column

Explanation:

The sensation of fine touch, proprioception and vibration are all conveyed in the dorsal column. Dissociated sensory loss suggests a focal lesion within the spinal cord itself. Lesions at this level include tabes dorsalis (a form of neurosyphilis) causing degeneration, traumatic injury, and subacute degeneration can be seen in pernicious anaemia.

Question:

A 9-year-old boy who is having an asthma attack is brought to surgery. Which one of the following findings would be categorise the asthma attack as life-threatening, rather than just severe, according to the British Thoracic Society guidelines?

A.Heart rate 140 bpm

B.Peak flow 30% of best

C.Use of accessory neck muscles

D.Sats 93%

E.Respiratory rate 36/min

Answer:Peak flow 30% of best

Explanation:

A PEF of 30% of best would indicate a life-threatening attack.

Question:

A 58-year-old man attends the general practice following a hospital admission for an ankle fracture 4 months ago which has been treated successfully. Whilst he was an inpatient, his HbA1c was found to be 56mmol/mol. His HbA1c is repeated today and has returned as 57mmol/mol.

His only other past medical history includes hip osteoarthritis and a myocardial infarction 7 months ago.

What management should be offered to this patient?

A.Reinforce lifestyle factors

B.Start empagliflozin

C.Start metformin and empagliflozin

D.Start metformin and up-titrate first

E.Start sitagliptin

Answer:Start metformin and up-titrate first

Explanation:

If starting an SGLT-2 as initial therapy for T2DM then ensure metformin is titrated up first

Important for meLess important

Start metformin and up-titrate first is correct. This patient has had two elevated HbA1c measures despite being asymptomatic, qualifying him for a diagnosis of type 2 diabetes. The NICE guidelines have been updated, and as he has had a previous myocardial infarction, the first-line management would be metformin and an SGLT-2 inhibitor (e.g. empagliflozin), ensuring metformin is up-titrated first. This suggestion is made by NICE because it ensures that any side effects that may occur can be identified as a result of metformin or the addition of empagliflozin.

Reinforce lifestyle factors is incorrect. Whilst always being a vital part of treatment advice, lifestyle factors alone at this point would not be enough considering the target HbA1c for someone with diabetes not taking a hypoglycaemic medication is 48mmol/mol. Commencing medication is required in this case.

Start empagliflozin is incorrect. Although the first-line management for patients with established cardiovascular disease or who are high-risk (e.g. a QRISK score >10%) is metformin and an SGLT-2 inhibitor, the metformin should be up-titrated first. This suggestion is made by NICE because it ensures that any side effects that may occur can be identified as a result of metformin or the addition of empagliflozin.

Start metformin and empagliflozin is incorrect. Although the first-line management for patients with established cardiovascular disease or who are high-risk is metformin and an SGLT-2 inhibitor, the metformin should be up-titrated first. This is because it ensures that any side effects that may occur can be identified as a result of metformin or the addition of empagliflozin.

Start sitagliptin is incorrect. This is not used initially in the management of type 2 diabetes mellitus and is a second-line option if metformin and empagliflozin are not sufficient.

Question:

A 54-year-old man comes to the office complaining of back pain. He reports poorly localised nonradiating lower back pain present for 3 weeks, with onset after a weekend gardening. He works as a plumber, and notes the pain has not improved with heating pad or paracetamol. There is no associated fever or neurological deficit. The patient reports intentional weight loss of 6kg over 3 months, and body mass index is 29 kg/m². Paraspinal tenderness is noted on examination. Straight-leg test is negative.

What is the next most appropriate next step?

A.Add a NSAID

B.Add an opioid analgesic

C.Advise strict bed rest

D.Order an MRI lumber spine

E.Order an x-ray of lumbar spine

Answer:Add a NSAID

Explanation:

NSAIDS are first line for lower back pain

Important for meLess important

The patient most likely has musculoskeletal back pain, exacerbated by physical labour. He has no evidence of infection or malignancy , and at this stage MRI is unlikely to change management.

Patients with back pain should be encouraged to stay physically active, rather than observing strict bed rest.

NSAIDS are recommended first-line for patients with back pain, and more effective than paracetamol monotherapy.

Opioids are not first line.

Question:

You are writing a discharge letter for a patient who has been in hospital for one month and needs a new supply of all of their regular medications.

The patient takes 300mg of gabapentin three times a day for neuropathic pain. You are aware that this is a controlled drug. You prescribe a one-month supply and ensure to write the total quantity of tablets needed in both words and figures on the prescription. Then, you sign and date the prescription and write your address as the hospital address.

Unfortunately, the pharmacy sends the prescription back to the ward and explains they cannot dispense it.

Which of the following reasons would explain why the pharmacy has said this?

A.Only a patient's GP can prescribe their regular controlled drugs

B.The address of the patient is not included on the prescription

C.The patient's allergies are not included on the prescription

D.The prescription is not hand written

E.You cannot prescribe more than a two week supply of a controlled drug at any time

Answer:The address of the patient is not included on the prescription

Explanation:

Controlled drug prescriptions - the address of the patient must be included on the prescription

Important for meLess important

Gabapentin is a controlled (schedule 3) drug. Legally, prescriptions for controlled drugs must contain the patient's name and address, the form and strength of the preparation, and the total quantity (in words and figures) of the preparation required. The prescriber's name, signature, address, and current date are also required. The pharmacy cannot dispense the drug if any information is missing. The prescription would therefore be sent back if the patient's address had not been included.

Although allergies must be checked before any prescription, it is not necessary to write these on the prescription for the prescription to be dispensed.

The BNF states that a machine-written prescription is acceptable for a controlled drug, although the prescriber's signature must be handwritten.

In this case, it is appropriate for a doctor other than the patient's GP to prescribe the medication. However, it is often appropriate to liaise with the patient's GP when prescribing controlled medication.

There is no one rule about the amount of a controlled drug that can be prescribed at one time. However, drugs may be dispensed in smaller amounts more frequently if there is a risk of abuse or overdose.

Question:

A 55-year-old woman was admitted as an inpatient with urosepsis and an acute kidney injury (AKI). Throughout her admission, she has had recurrent severe hyperkalemia, that only transiently improve with insulin and dextrose infusions. She takes no regular medications and has no significant past medical history.

What would be an additional prescription to help prevent this recurrence?

A.Calcium gluconate

B.Calcium resonium

C.Furosemide

D.Magnesium supplementation

E.Spironolactone

Answer:Calcium resonium

Explanation:

Calcium resonium results in removal of potassium from the body, rather than shifting potassium between fluid compartments in the short-term

Important for meLess important

Calcium resonium would be the best choice in this situation. This patient's hyperkalemia responds to treatment although only transiently as insulin only leads to temporary uptake of extracellular potassium intracellularly. This effect can last 4-6 hours, after which potassium levels would be expected to rise again. Therefore, although it would not act immediately, potassium binders are helpful in actually removing dietary potassium from the body and helping to reduce hyperkalemia. This would only be a temporary intervention until the patient's AKI improves to a point where her kidneys can once again excrete potassium readily.

Calcium gluconate is very important for cardio-protection in severe hyperkalemia and/or those associated with ECG changes. However, it does not independently change potassium levels, and would be of no value in preventing the recurrence of hyperkalemia which this question is specifically asking for.

Although furosemide may help clear some potassium from the body, in a patient with AKI and urosepsis, and no evidence of fluid overload, giving furosemide could potentially be harmful.

Magnesium supplementation is useful for refractory hypokalemia associated with magnesium deficiency. It would not help with refractory hyperkalemia.

Spironolactone would increase potassium levels and, therefore, not be recommended in this situation.

Question:

A 43-year-old woman has a 6-month history of intermittent flushing and erythema across her cheeks and nose caused by hot drinks, exercise and extreme temperatures. She is frustrated by the impact of her symptoms on her usual daily activities. There are no pustules or papules, and minimal telangiectasia present.

Given the most likely diagnosis, what is the most appropriate management option?

A.Advise to continue avoiding triggers

B.Brimonidine gel

C.Doxycycline

D.Ivermectin cream

E.Refer to dermatology

Answer:Brimonidine gel

Explanation:

For patients with rosacea with predominant flushing but limited telangiectasia, consider prescribing brimonidine gel

Important for meLess important

Brimonidine gel is correct. The most likely diagnosis given the clinical information is rosacea. Given the intermittent nature of her symptoms and the absence of significant rash or telangiectasia, brimonidine (a topical alpha-adrenergic agonist) that provides temporary relief of flushing and erythema symptoms is the most appropriate option. It reduces erythema within 30 minutes, reaching peak action at 3–6 hours, after which the effect diminishes and erythema returns to baseline.

Advise to avoid triggers is incorrect. She is frustrated by the impact of her symptoms on her daily activities, and therefore an option providing symptomatic relief should be offered. Avoiding certain triggers may be appropriate, but she should be encouraged to live a healthy lifestyle, including outdoor and physical activity.

Doxycycline is incorrect. Whilst an appropriate management option in the treatment of rosacea, it is indicated in combination with ivermectin if moderate-to-severe papules and/or pustules are present.

Ivermectin cream (an antihelmintic and insecticidal preparation) is incorrect. This is instead the first-line topical preparation for rosacea with mild-to-moderate papules and/or pustules - which are absent in this clinical scenario.

Refer to dermatology is incorrect. This patient has mild symptoms relating to rosacea that is currently untreated. Initiating first-line management should be undertaken in primary care, and referral here is inappropriate. Criteria for secondary care referral include persistent erythema that has not responded to optimal management in primary care, persistent inflammatory papules and/or pustules that have not responded to optimal management in primary care, severe telangiectasia that have not responded to self-management advice or there is uncertainty regarding the diagnosis. A referral to a plastic surgeon is required if there is prominent non-inflamed phymatous disease.

Question:

You are junior doctor at a GP practice. Your next patient is a 3-year-old girl who is notably irritable and teary. Her father explains that she has had a reduced appetite for the past couple of days.

On examination you note multiple vesicles over both palms and around the mouth. She is also pyrexial.

Given the likely diagnosis, what is the most appropriate next step?

A.1% hydrocortisone for one week

B.Advise symptomatic treatment only

C.IM benzylpenicillin STAT

D.PO prednisolone for 1 week

E.Send blood cultures

Answer:Advise symptomatic treatment only

Explanation:

Hand, foot and mouth disease requires symptomatic treatment only

Important for meLess important

This young girl has hand, foot and mouth disease; a common, self-limiting viral illness caused by the coxsackie virus A16. It is contagious and easily spreads between children, especially at nurseries. The child may have some general malaise but the vesicles do not cause discomfort for the child.

Differentiate from chicken pox as these are isolated to the palms/soles/mouth and heal without crusting.

A stat dose of benzylpenicillin is for suspected cases of meningitis. The lesions described here are vesicles rather than a rash.

There is no need for blood cultures to be sent as it will not affect the management.

Steroids (cream or orally) are not a recognised treatment for hand, foot and mouth disease. You would consider hydrocortisone cream for an eczematous rash but that is not the diagnosis here.

Question:

A woman presents with several swollen joints on her right hand. Her left wrist is also swollen. She complains that the affected joints are painful and stiff. On examination, they are very erythematous and warm to touch. She has had no recent trauma to any of the joints. She is systemically well.

Joint aspirate shows the following:

Variable Sample Normal findings

Appearance turbid, yellow clear, colourless

WBC 25,000/mm³ <200

Neutrophils 70% none

Viscosity reduced normal

Polarised light microscopy unremarkable unremarkable

What is the most likely diagnosis?

A.Gout

B.Osteoarthritis

C.Pseudogout

D.Rheumatoid arthritis

E.Septic arthritis

Answer:Rheumatoid arthritis

Explanation:

Joint aspirate in rheumatoid arthritis shows a high WBC count, predominantly PMNs. Appearance is typically yellow and cloudy with absence of crystals

Important for meLess important

Gout would show negatively birefringent needle-shaped urate crystals on polarised light microscopy.

Osteoarthritis would show fewer WBCs and a lower proportion of neutrophils with a clear appearance, and it most often presents in larger weight-bearing joints.

Pseudogout would show positively birefringent rhomboid-shaped crystals.

Rheumatoid arthritis is the correct answer with raised white cells, predominantly neutrophils, and a turbid appearance.

Septic arthritis would have similar joint aspirate but the patient would be systemically unwell and it would likely have been precipitated by trauma.

Question:

Elena, a 22-years old woman, presents to her GP with recurrent nosebleeds and unexplained bruising on her arms and legs. She tells you that her mother has always had a similar problem, but never had it looked at. In light of this, you decide to send her for a number of blood tests.

Given the most likely diagnosis, which of the following results would you expect to see?

A.Prolonged bleeding time, low platelet count, prolonged APTT

B.Prolonged bleed time, normal platelet count, prolonged APTT

C.Prolonged bleeding time, low platelet count, shortened APTT

D.Prolonged bleeding time, normal platelet count, shortened APTT

E.Normal bleeding time, normal platelet count, normal APTT

Answer:Prolonged bleed time, normal platelet count, prolonged APTT

Explanation:

In VWD, bleeding time is increased but platelet levels are normal. In addition, APTT is prolonged

Important for meLess important

Von Willebrand's disease is the most common genetic bleeding disorder, and is inherited in an autosomal dominant fashion. It behaves like a platelet disorder, as von Willebrand Factor (vWF) is required to promote platelet adhesion to the damaged endothelium. Patients therefore experience mucocutaneous bleeding after mild injury (e.g. nose-bleeds, bruising). Also, this means that bleeding time is prolonged, as they cannot adhere to form the platelet plug, but the actual platelet count itself is normal.

vWF also acts as a carrier molecule for factor VIII which is measured by APTT, and as a result, the APTT is prolonged. This is also seen in haemophilia A (factor VIII deficiency), but to a greater degree.

Question:

A 47-year-old man is brought into the emergency department (ED) by ambulance after his wife found him acting strange in the garage. On route to hospital he started seizing, lasting for 1 minute. When asked for collateral by the ED doctor the wife stated she found an empty bottle of anti-freeze on the garage floor and that he had been low in mood for the past few weeks after losing his job.

What is the most appropriate initial management for this patient?

A.Flumazenil

B.Fomepizole

C.N-acetylcysteine

D.Naloxone

E.100% hyperbaric oxygen

Answer:Fomepizole

Explanation:

Ethylene glycol toxicity management - fomepizole. Also ethanol / haemodialysis

Important for meLess important

This man has ingested anti-freeze (ethylene glycol), likely in an attempt to commit suicide. Fomepizole is the first-line treatment in ethylene glycol poisoning, with ethanol being second line and dialysis used in refractory cases.

Flumazenil used to treat benzodiazepine overdoses.

N-acetylcysteine is used for paracetamol overdose.

Naloxone is used to treat opioid overdose.

Hyperbaric oxygen is used for carbon monoxide poisoning.

Question:

During the ward round you notice that a 73-year-old woman, who was admitted last night with community acquired pneumonia, is not on any prophylaxis for venous thromboembolism. Her background history is significant for hypertension, chronic kidney disease stage 4 and one previous deep venous thrombosis 15 years ago.

On her admission bloods her creatinine clearance is 18 mL/min. Her electrocardiogram shows sinus rhythm.

Which of the following is most correct regarding her need for venous thromboembolism prophylaxis?

A.She does not require venous thromboembolism prophylaxis

B.She should be prescribed any direct oral anticoagulant

C.She should be prescribed only mechanical prophylaxis in the form of stockings

D.She should be prescribed unfractionated heparin

E.She should be prescribed warfarin

Answer:She should be prescribed unfractionated heparin

Explanation:

Bleeding is significantly more common with LMWH than with Unfractionated Heparin (UFH) among patients with severe renal impairment

Important for meLess important

Unfractionated heparin is the correct answer. While guidelines state LMWH may also be prescribed with a creatinine clearance of <30mL/min at reduced dose, they are generally less favourable than unfractionated heparin due to the bleeding risk with LMWH.

Given her age, likely reduced mobility secondary to pneumonia and prior history of DVTs she will require VTE prophylaxis. The fact she is in sinus rhythm does not change this.

Any direct oral anticoagulant is incorrect. With her reduced kidney function seen by her creatinine clearance some DOACs would not be suitable to prescribe. Different DOACs have differing levels of renal clearance (dabigatran 80%, edoxaban 50%, rivaroxaban 35%, apixaban 27%). As such it would be important to avoid any of the DOACs that are excreted mostly by the kidneys.

There is no clear indication for warfarin in this case, as again it is not indicated for venous thromboembolism prophylaxis.

Only mechanical prophylaxis in the form of stockings - this would not be sufficient as she has a significant history of thrombophilia.

Question:

A 35-year-old female is undergoing pre-operative assessment for an elective laparoscopic cholecystectomy under a general anaesthetic. She asks when she should stop her combined oral contraceptive pill. What is the most appropriate advice?

A.2 days prior

B.2 weeks prior

C.4 weeks prior

D.8 weeks prior

E.No need to stop oral contraceptive pill

Answer:4 weeks prior

Explanation:

Due to an increased risk of venous thromboembolism it is advisable to stop the combined oral contraceptive pill 4 weeks prior to her operation.

Question:

A 55-year-old woman presents to the emergency department with a productive cough, wheeze, and fever. She has a background of rheumatoid arthritis and is treated with methotrexate and folic acid.

On examination, there are bilateral crackles at the lung bases that clear upon coughing and bilateral wheezing.

A chest-x-ray demonstrates dilated bronchi with thickened walls in the lower zones.

Given the context, what is the most likely organism to grow in the sputum?

A.Haemophilus influenzae

B.Klebsiella pneumoniae

C.Mycobacterium abscessus

D.Pseudomonas aeruginosa

E.Stenotrophomonas maltophilia

Answer: Haemophilus influenzae

Explanation:

Bronchiectasis: most common organism = Haemophilus influenzae

Important for meLess important

Haemophilus influenzae is correct. The patient presents with a productive cough along with crackles that clear on coughing with radiographic evidence of dilated bronchi and thickened walls in the lower zones ('tram-track sign'). On a background of rheumatoid arthritis, this suggests the patient has underlying bronchiectasis and is experiencing an exacerbation. The most common organism found in infective exacerbations of bronchiectasis is Haemophilus influenzae .

Klebsiella pneumoniae is incorrect. This organism is commonly found in patients with infective exacerbations of bronchiectasis. However, it is less commonly found than Haemophilus influenzae . If the patient was an alcoholic, this organism may be more commonly found.

Mycobacterium abscessus is incorrect. This organism can be found in patients with bronchiectasis secondary to cystic fibrosis but is less commonly found in patients with bronchiectasis secondary to rheumatoid.

Pseudomonas aeruginosa is incorrect. Again, this can be found in patients experiencing an infective exacerbation of bronchiectasis but less commonly than Haemophilus influenzae . Risk factors for Pseudomonas aeruginosa include long duration of bronchiectasis and proton pump inhibitor use. Given bronchiectasis is not included in the past medical history in this case, we may infer that there have not been repeated exacerbations preceding this making Pseudomonas aeruginosa less likely.

Stenotrophomonas maltophilia is incorrect. Again, this is more commonly found in CF-related bronchiectasis rather than non-CF-related bronchiectasis.

Question:

A 34-year-old woman has requested a telephone consultation to discuss her cervical smear results.

She had a cervical smear test as part of the routine screening programme and is currently asymptomatic.

Her previous cervical smear was 3 years ago and was normal. She has not received the HPV (human papillomavirus) vaccination.

Her results are as follows:

High-risk human papillomavirus (hrHPV): POSITIVE.

Cytology: ABNORMAL (high-grade dyskaryosis).

What would be the next step in her management?

A.Offer the HPV vaccination

B.Referral to colposcopy for consideration of large loop excision of the transformation zone (LLETZ)

C.Repeat cervical smear within 3 months

D.Routine referral to gynaecology

E.Urgent referral to gynaecology

Answer:Referral to colposcopy for consideration of large loop excision of the transformation zone (LLETZ)

Explanation:

Large loop excision of transformation zone (LLETZ) is an appropriate technique to treat cervical intraepithelial neoplasia

Important for meLess important

Urgent large loop excision of the transformation zone (LLETZ) is the correct option. Individuals who are found to have CIN2 or CIN3 'high grade' cervical intraepithelial neoplasia on colposcopy are offered treatment to remove the abnormal cells. The most common procedure is the LLETZ procedure. LLETZ is done in the same appointment or in a prompt subsequent appointment. Another option at this stage would be cryotherapy to remove the abnormal cells.

Offer the HPV vaccination is an incorrect answer. Girls and boys aged 12 to 13 are offered the HPV vaccine, it is not offered retrospectively.

Repeat cervical smear within 3 months is an incorrect answer. A patient may be offered a repeat cervical smear within 3 months if the high-risk human papillomavirus (hrHPV) test result is unavailable or cytology is inadequate.

Routine referral to gynaecology is an incorrect answer. A referral to gynaecology would not be indicated, as the patient would already be followed up by the colposcopy service.

Urgent referral to gynaecology is an incorrect answer. If a patient is found to have cervical cancer, they would require an urgent referral for assessment and treatment, but this is not indicated for this case.

Question:

A 35-year-old woman is being treated for diffuse scleroderma. She tells her rheumatologist she has had intermittent diarrhoea, nausea and bloating for the last three months. She has symptoms 2-3 times per week with no change after eating any particular food. Her symptoms improved after taking oral antibiotics two weeks ago. She has no history of recent foreign travel.

The rheumatologist takes some blood tests shown below:

Hb 120 g/L Male: (135-180)

Female: (115 - 160)

ESR 10 mm/hr Men: < (age / 2)

Women: < ((age + 10) / 2)

Ferritin 50 ng/mL (20 - 230)

Vitamin B12 423 ng/L (200 - 900)

Folate 5.5 nmol/L (> 3.0)

What is the most likely diagnosis?

A.Coeliac disease

B.Crohn's disease

C.Irritable bowel syndrome

D.Small bowel bacterial overgrowth syndrome

E.Whipple's disease

Answer:Small bowel bacterial overgrowth syndrome

Explanation:

Scleroderma is a risk factor for small bowel bacterial overgrowth syndrome

Important for meLess important

Small bowel bacterial overgrowth syndrome (SBBOS) is correct. This patient has presented with a history of intermittent loose stools and bloating. This can be indicative of a few different conditions. However, the fact that the symptoms are not related to certain food and a past medical history of scleroderma means that the patient is at risk of SBBOS. A clue, in this case, is that her symptoms improved after a course of oral antibiotics. A diagnosis can be made using hydrogen breath testing.

Coeliac disease is incorrect. This patient has presented with intermittent diarrhoea and bloating. These symptoms could be indicative of coeliac disease. However, the fact that her examination and blood tests are normal would point towards another diagnosis. A degree of weight loss may also be expected. The past medical history of scleroderma points more towards a diagnosis of SBBOS.

Crohn's disease is incorrect. This patient has presented with symptoms that could be indicative of inflammatory bowel disease. However, Crohn's disease will typically present with weight loss and fatigue, as well as mucus and extra-intestinal manifestations such as ulcers. A normal ESR also makes Crohn's less likely. In this case, another diagnosis is more likely.

Irritable bowel syndrome is incorrect. This patient has presented with intermittent diarrhoea, nausea and bloating. These are classic symptoms of irritable bowel syndrome (IBS). However, this patient has a past medical history of diffuse scleroderma, which puts her at risk of SBBOS. A clue, in this case, is that the patient's symptoms had improved after taking antibiotics, suggesting a bacterial cause of her symptoms. The doctor should consider this before making a diagnosis of IBS.

Whipple's disease is incorrect. This patient has presented with intermittent diarrhoea and bloating on a background of diffuse scleroderma. Whilst Whipple's disease can present with these symptoms, other symptoms such as polyarthralgia, cough and hyperpigmentation would be expected in a classic presentation of Whipple's disease. Whipple's disease is uncommon in the UK, and with no history of foreign travel, this makes a diagnosis of Whipple's unlikely. Also, treatment for Whipple's disease involves antibiotic regimes for several months and sometimes years. A relatively short, two-week course of antibiotics as in this case would not resolve the patient's symptoms if they were a result of Whipple's disease.

Question:

You have just helped deliver a 2 week premature baby and are asked to do a quick assessment of the current APGAR score. The baby has a slow irregular cry, is pink all over, a slight grimace, with a heart rate of 140 BPM and moving both arms and legs freely. The current APGAR score is?

A.5

B.6

C.7

D.8

E.9

Answer:8

Explanation:

This baby will score an APGAR of 8. The breakdown of points is as follows;

A - Pink all over no cyanosis - 2 points

P - Pulse rate over 100 - 2 points

G - Grimace - 1 point

A - Activity flexed arms and legs - 2 points

R - Respiration slow irregular cry - 1 point

A score of over 7 is generally accepted as normal

Question:

A hepatitis B serology positive woman gives birth to a healthy baby girl. The mother is surface antigen positive. What treatment should be given to the baby?

A.Hep B vaccine

B.Hep B vaccine and 0.5 millilitres of HBIG within 12 hours of birth

C.0.5 millilitres of HBIG within 12 hours of birth only

D.Hep B vaccine and 0.5 millilitres of HBIG within 12 hours of birth with a further hepatitis vaccine at 1-2 months and a further vaccine at 6 months

E.No treatment required

Answer:Hep B vaccine and 0.5 millilitres of HBIG within 12 hours of birth with a further hepatitis vaccine at 1-2 months and a further vaccine at 6 months

Explanation:

This question tests your knowledge of the hepatitis B vaccine schedule in babies born at risk of developing hepatitis B. For babies who are born to mothers who are hepatitis B surface antigen positive, or are known to be high risk of hepatitis B, should receive the first dose of hepatitis B vaccine soon after birth and those born to mother's who are surface antigen positive should also receive 0.5 millilitres of hepatitis B immunoglobulin within 12 hours of birth. The baby should then further receive a second dose of hepatitis B vaccine at 1-2 months and at 6 months.

Question:

Rachel, 17, is at her GP's requesting the combined oral contraceptive pill (COCP). According to the Faculty of Sexual and Reproductive Healthcare (FSRH) guidelines, which of the following is an absolute contra-indication for the COCP?

A.First degree relative with venous thromboembolism aged 25

B.Smoker (10/day) over the age of 35

C.BMI of 30 kg/m2

D.Blood pressure of 150/90 mmHg

E.Migraine with aura

Answer:Migraine with aura

Explanation:

The only absolute contra-indication in the range of answers is migraine with aura.

The Faculty of Sexual and Reproductive Healthcare (FSRH) categorise risk factors on a scale of 1 to 4 as follows:

1 - no restrictions on the use of contraceptive method

2 - advantages of contraceptive method generally outweigh the theoretical and proven risks

3 - theoretical and proven risks generally outweigh the advantages of the contraceptive method, can still be given based on expert clinical judgement

4 - condition that poses unacceptable risk if the contraceptive method is used

The options for this question have the following categories assigned to them:

Migraine with aura (4)

First degree relative with venous thromboembolism aged 25 (3)

Smoker (10/day) over the age of 35 (3)

BMI of 30 kg/m2 (2)

Blood pressure of 150/90 mmHg (3)

Absolute contra-indications for the combined oral contraceptive pill (category 4) include:

Migraine with aura

Breastfeeding <6 weeks post-partum

Age 35 or over smoking 15 or more cigarettes/day

Systolic 160mmHg or diastolic 95mmHg

Vascular disease

History of VTE

Current VTE (on anticoagulants)

Major surgery with prolonged immobilisation

Known thrombogenic mutations

Current and history of ischaemic heart disease

Stroke (including TIA)

Complicated valvular and congenital heart disease

Current breast cancer

Nephropathy/retinopathy/neuropathy

Other vascular disease

Severe (decompensated) cirrhosis

Hepatocellular adenoma

Hepatoma

Raynaud's disease with lupus anticoagulant

Positive antiphospholipid antibodies

Question:

A 32-year-old woman raises a concern at her booking appointment, which gets passed on to the obstetrician. She says that her previous child was born with a congenital defect and she wonders if anything needs to be done during this current pregnancy. The obstetrician looks through the notes from her previous pregnancy and identifies that the neonate was found to have a left subclavicular thrill, a heaving apex beat, and a continuous 'machinery like' murmur.

Regarding this defect, what is the correct management?

A.Dexamethasone to be given to the mother, antenatally

B.Indomethacin to be given to the mother, antenatally

C.Indomethacin to be given to the neonate, postnatally

D.Prostaglandin E1 to be given to the mother, antenatally

E.Prostaglandin E1 to be given to the neonate, postnatally

Answer:Indomethacin to be given to the neonate, postnatally

Explanation:

Patent ductus arteriosus: indomethacin is given to the neonate in the postnatal period, not to the mother in the antenatal period

Important for meLess important

The diagnosis being described here is that of patent ductus arteriosus (PDA). Whilst a valid concern for this mother, given her previous pregnancy with the defect, she should not be given a drug now - after delivery, if the neonate is found on examination to have a PDA, indomethacin will be given to the neonate. This inhibits prostaglandin synthesis and, in the majority of cases, closes the defect.

Dexamethasone given to the mother is incorrect. This is used for fetal lung maturation when premature delivery is suspected of occurring. It does not play a role in PDA management.

Giving indomethacin to the mother, antenatally, is incorrect - as explained, the correct management is to give the drug to the neonate, postnatally, once a PDA is identified.

Prostaglandin E1 given antenatally is incorrect - this would be given to the neonate postnatally and effectively does the opposite to indomethacin, keeping the PDA patent. This is useful if another congenital heart defect is found which is amenable to surgery.

Prostaglandin E1 given postnatally is incorrect. As explained above, it would be given postnatally if another defect were found, amenable to surgery. However, routine management for PDA would be the use of indomethacin to close the PDA.

Question:

A 29-year-old primigravida woman is taken for an emergency caesarean section following cardiotocography indications of fetal distress and hypoxia. She is at 30 weeks gestation.

Her baby is successfully delivered and taken to the neonatal intensive care unit (NICU) and given oxygen due to difficulties with breathing.

A couple of weeks later, the baby is still in NICU and during an ophthalmological examination, there is an absent red reflex bilaterally and retinal neovascularisation.

What is the most likely diagnosis?

A.Congenital CMV retinopathy

B.Congenital cataracts

C.Congenital ocular syphilis

D.Retinoblastoma

E.Retinopathy of prematurity

Answer:Retinopathy of prematurity

Explanation:

Retinopathy of prematurity is an important cause of visual impairment in babies born before 32 weeks gestation

Important for meLess important

Retinopathy of prematurity is correct. This is a premature baby born before 32 weeks and has been receiving oxygen treatment. Over-oxygenation can cause retinal vessel proliferation which can lead to a loss of the red reflex and neovascularisation seen in the examination.

Congenital cytomegalovirus is incorrect. This infection is associated with retinitis, which can cause retinal detachment and therefore, a loss of the red reflex. However, there is no indication of a CMV infection here. CMV infection would also be associated with a rash, jaundice, microcephaly, hepatosplenomegaly and seizures. On examination, CMV retinitis would reveal a 'salt and pepper' retinopathy, characterised by hyper- and hypopigmented regions of the retina.

Congenital cataracts is incorrect. This is associated with congenital infection of rubella or varicella zoster. Congenital rubella infections would also be associated with sensorineural deafness, congenital heart disease (PDA), hepatosplenomegaly, purpuric rash, salt and pepper chorioretinitis (retinitis distinguished by pigmenting and depigmenting lesions) and microphthalmia. Fetal varicella syndrome would be associated with skin scarring, microphthalmia, limb hypoplasia and microcephaly.

Congenital ocular syphilis is incorrect. A congenital syphilis infection would likely cause ocular manifestations of disease such as chorioretinitis, cataracts, interstitial keratitis and/or optic neuritis. Cataracts in particular would explain the loss of a red reflex, however, a syphilis infection would include other clinical manifestations such as rhinitis, hepatosplenomegaly, a desquamating skin rash, bone demineralisation and haematological complications. These other complications are not mentioned in the case above, which makes this an unlikely diagnosis.

Retinoblastoma is incorrect. Although it is a cause for absent red reflex, it would most likely be unilateral. It would also be replaced with a white pupil (leukocoria) and be associated with strabismus.

Question:

A 34-year-old woman presents with a painful right calf. She had surgery for a fractured right tibia one month ago and recently had the cast removed.

On examination, the patient is alert, with a heart rate of 92 beats per minute, a respiratory rate of 19/min, a temperature of 37.5ºC, and oxygen saturation of 97%. Her right calf is tender and, on measurement, is 4cm larger in diameter than the left calf.

She had a CTPA due to suspicion of a PE, which was negative and is now being investigated for a DVT.

What is the most appropriate course of action?

A.D-dimer within 4 hours

B.Distal leg ultrasound within 24 hours

C.Interim anticoagulation until a D-dimer can be performed

D.Interim anticoagulation until a proximal leg ultrasound can be performed

E.Stop anticoagulation and order a proximal leg ultrasound 1 week later

Answer:Interim anticoagulation until a proximal leg ultrasound can be performed

Explanation:

Interim anticoagulation until a proximal leg ultrasound can be performed is the correct answer. The patient in the vignette has a 2-level DVT Wells score of 3 (recent plaster immobilisation of lower limb = 1 + localised tenderness = 1 + entire swollen leg = 1). It is also likely that her right calf is 3cm more than the left, which would provide another point. If the score exceeds 1, a proximal leg ultrasound must be performed within 4 hours, or interim anticoagulation must be started until a proximal leg ultrasound can be performed.

D-dimer within 4 hours is incorrect. This is appropriate for patients with a 2-level Wells score of 1 or less. The patient in the vignette has a 2-level DVT Wells score of 3.

Distal leg ultrasound within 24 hours is incorrect. This patient requires a proximal leg ultrasound to detect a DVT. DVTs are more commonly proximal (80%; found in the popliteal, femoral, or iliac veins) than distal (20%; found below the knee). Therefore, a distal leg ultrasound may result in a false negative result. Furthermore, proximal leg DVTs have a poorer prognosis (higher 90-day mortality) than distal leg DVTs. If a proximal leg ultrasound cannot be performed within 4 hours, interim anticoagulation is required to lower the risk of progression of the DVT and the development of a PE.'

Interim anticoagulation until a D-dimer can be performed is incorrect. This would be appropriate if the patient had a 2-level Wells score of 1 or less. The patient in the vignette has a 2-level DVT Wells score of 3.

Stop anticoagulation and order a proximal leg ultrasound 1 week later is incorrect. The patient has a 2-level DVT Wells score of 3, which requires a proximal leg ultrasound that must be performed within 4 hours or interim anticoagulation that must be started until a proximal leg ultrasound can be performed. If the scan is negative and a subsequent D-dimer is positive, anticoagulation would be stopped, and a repeat ultrasound would be conducted one week later.

Question:

You are an FY1 on medical ward cover. You are asked to cannulate a 69-year-old male with type-2 diabetes. He is being treated for sepsis, has a left below the knee amputation and diabetic retinopathy. Which of the following is correct in this situation?

A.You should avoid cannulating his hand

B.A cannula should only stay in for 24 hours in a known diabetic

C.You should avoid cannulating his foot

D.You should give a shot of antibiotics prior to cannulating a diabetic

E.You should give an extra 5 units of insulin due to the stress of cannulation

Answer:You should avoid cannulating his foot

Explanation:

You should avoid cannulating the feet if the patient is a known diabetic

Important for meLess important

This patient clearly has poorly controlled diabetes, he already had diabetic retinopathy and you can assume peripheral neuropathy as well which has resulted in his amputation.

Due to the neuropathy you should avoid cannulating his foot as this could easily turn into a diabetic ulcer.

There is no reason stated as to why you cannot cannulate his hand.

While diabetics are more prone to infection there is no guidelines that state a cannula can only stay in for 24 hours. they can stay in for 3 days as in most other people. You also shouldn't give a shot of antibiotics prior to cannulation. If you use a sterile, non-touch technique then risk of infection should remain low as in anyone else.

While cannulation can be stressful for some people giving insulin would be unnecessary and dangerous. You should always check blood glucose prior to administering insulin.

Question:

A 65-year-old man presents to the vascular clinic with a known history of peripheral arterial disease. His pain has now increased so that it is not relieved by rest as it was previously, and he has noticed a small ulcer forming on the pad of his big toe. He is currently taking metformin, clopidogrel, and atorvastatin. The patient has had a CT angiogram performed on his legs which shows stenosis of 8cm.

What would be the next best step in this patient's management?

A.Amputation

B.Compression stockings

C.Endovascular revascularisation (angioplasty) surgery

D.Open revascularisation (bypass) surgery

E.Supervised exercise programme

Answer:Endovascular revascularisation (angioplasty) surgery

Explanation:

Peripheral arterial disease with critical limb ischaemia: high-risk patients with short segment stenosis are more suited to endovascular revascularization

Important for meLess important

Endovascular revascularisation (angioplasty) surgery is the correct answer. This patient has critical limb ischaemia and has trialled medical treatment, meaning they require surgery. NICE recommends this type of surgery in preference to bypass surgery for patients with short segment stenosis (<10cm) as it is less invasive.

Amputation is incorrect. This is a surgical option, but would certainly not be recommended as first-line for any patient. This is reserved for patients where all treatment has failed or there is gangrene causing sepsis.

Compression stockings is incorrect. These are a treatment for peripheral venous disease, not peripheral arterial disease. Stockings can worsen peripheral arterial disease.

Open revascularisation (bypass) surgery is incorrect. This is another surgical option however would not be recommended for this patient. It is a more invasive surgery and so would be reserved for more diffuse disease, or with stenosis >10cm.

Supervised exercise programme is incorrect. This is a conservative measure, which presumably this patient has already tried, and regardless, this patient's ischaemia is critical and they risk losing their limb so need surgical intervention.

Question:

A 32-year-old man presents to his general practitioner (GP) with a 3-month history of difficulty concentrating, generalised muscle aches and fatigue. The man works as a deer-stalker and spends most of his day walking through long grass in rural Scotland. He reports removing ticks from his legs most days.

On examination, there is a circular 16cm rash on the lower leg consistent with erythema migrans.

How should this patient be managed?

A.Conduct further tests and only start antibiotics if positive

B.No further tests or treatment required

C.Conduct further tests and start antibiotics whilst awaiting the result

D.Refer the patient to a specialist

E.Start antibiotics immediately without further tests

Answer:Start antibiotics immediately without further tests

Explanation:

Lyme disease can be diagnosed clinically if erythema migrans is present → give antibiotics

Important for meLess important

The NICE Clinical Knowledge Summary states that erythema migrans only occurs in Lyme disease and may be used to diagnose Lyme disease, so laboratory testing is unnecessary, and prompt treatment will prevent development of further symptoms. Therefore, no further tests are required in this case and treatment with doxycycline should be started immediately.

Patients with focal symptoms - for example uveitis, facial nerve palsy or arthritis - should be referred to the relevant specialist or a discussion with a specialist should be sought. However, this should not delay antibiotic treatment.

Question:

A 40-year-old man with beta-thalassaemia is receiving a blood transfusion in hospital. Within 10 minutes of starting the transfusion, he becomes acutely unwell, with fevers, rigors and significant abdominal pain.

Observations:

Pulse: 124bpm

Blood pressure: 94/62 mmHg

Oxygen saturations: 96% on air

Respiratory rate: 24/min

Temperature: 38.6ºC

What is the most appropriate management?

A.Stop the transfusion and give IV fluids

B.Stop the transfusion, give an antihistamine and then continue the transfusion at a slower rate

C.Stop the transfusion and give IV diuretics

D.Slow the rate of transfusion and give oral paracetamol

E.Stop the transfusion, give IM adrenaline and begin fluid resuscitation

Answer:Stop the transfusion and give IV fluids

Explanation:

Acute haemolytic transfusion reaction should be treated with generous fluid resuscitation and termination of the transfusion.

Important for meLess important

This patient is experiencing an acute haemolytic transfusion reaction, usually a result of giving ABO-incompatible blood secondary to human error. It is vital to stop the transfusion and begin aggressive fluid resuscitation.

Stopping the transfusion, giving antihistamine and then re-starting the transfusion at a slower rate would be appropriate for a minor allergic reaction to the transfusion. This would be more likely to cause pruritus and urticaria rather than result in haemodynamic instability and fever.

Stopping the transfusion and giving IV diuretics is the management of transfusion-associated circulatory overload (TACO). This would be characterised by shortness of breath and crackles (pulmonary oedema) and high blood pressure.

Slowing the transfusion and giving paracetamol is appropriate for non-haemolytic febrile reaction, but this patient is experiencing haemodynamic instability and significant pain, so a haemolytic reaction is the most likely diagnosis.

Stopping the transfusion and giving adrenaline is the correct management of anaphylaxis, which would present with wheeze, stridor, shortness of breath and likely skin changes such as urticaria and angioedema. It is not the correct management for acute haemolytic reaction.

Question:

A 7-month old baby boy is brought to his general practitioner by his parents. They want him to undergo circumcision on the ground of religious beliefs. The doctor informs them that this procedure is not offered by the NHS, unless there is a medical reason, and needs to be done by a private clinic.

Which one of the following needs to be excluded before taking the decision of performing the procedure?

A.Balanitis xerotica obliterans

B.Hypospadias

C.Paraphimosis

D.Phimosis

E.Recurrent balanitis

Answer:Hypospadias

Explanation:

Hypospadias is a contraindication to circumcision in infancy as the foreskin is used in the repair

Important for meLess important

The correct answer is hypospadias. It is a birth defect in boys in which the opening of the urethra is not located at the tip of the penis but along the shaft. It is a contraindication to circumcision in infancy as the foreskin is used in the repair. Some of the repairs done during the surgery include creating the opening of the urethra in the right place, correcting the curve in the penis, and repairing the skin around the opening of the urethra.

All the other options are indications for medical circumcision and in these cases, the procedure is offered for free under the NHS.

Balanitis xerotica obliterans is a rare form of balanitis caused by Lichen sclerosus. It may be itchy, associated with white plaques and can cause significant scarring.

Paraphimosis is a urologic emergency in which the retracted foreskin of an uncircumcised male cannot be returned to its normal anatomic position.

Phimosis is a condition where the foreskin is too tight to be pulled back over the head of the glans penis.

Recurrent balanitis is a recurrent inflammation of the glans penis and sometimes extends to the underside of the foreskin which is known as balanoposthitis.

Question:

A 60-year-old is initially admitted with a significant urinary infection requiring multiple courses of broad-spectrum antibiotics. The team were preparing him for discharge after his symptoms resolved and blood tests all returned to normal but he now reports developing severe diarrhoea and abdominal cramps over the last few days.

His observations are within normal range but on examination, he has generalised discomfort on abdominal palpation.

An abdominal x-ray shows evidence of colitis and a stool test confirm the presence of an anaerobic, gram +ve bacteria.

What treatment should be commenced?

A.IV vancomycin

B.Oral fidaxomicin

C.Oral fidaxomicin and IV metronidazole

D.Oral vancomycin

E.Oral vancomycin and IV metronidazole

Answer:Oral vancomycin

Explanation:

Oral vancomycin is the first line antibiotic for use in patients with C. difficile infection

Important for meLess important

This patient has developed a Clostridium difficile infection following the courses of broad-spectrum antibiotics which can disrupt the normal gastrointestinal flora, allowing the gram +ve, anaerobic bacteria to increase in number. In this case, the infection can be considered severe as the patient has evidence of colitis on radiological imaging, but as the patient is not hypotensive and there is no evidence of ileus or toxic megacolon its is not currently considered a ‘life-threatening’ case. As such standard first-line treatment in the form of oral vancomycin should be commenced. Only after failure of this treatment or if the patient were to deteriorate further should management be escalated.

IV vancomycin does not have a clear role in the management of C. difficile infections with the oral form of the antibiotic used as first-line before escalating to other therapeutic agents.

Oral fidaxomicin should be reserved for second-line treatment of C. difficile and therefore used if the infection persists after a 10-day course of oral vancomycin or if recurrency of the infection occurs within 12 weeks of symptom resolution. Final, if recurrency occurs beyond 12 weeks fidaxomicin can be considered but it should not be used routinely as first-line for initial infections.

Oral fidaxomicin and IV metronidazole may be considered in combination for third-line treatment of C. difficile or in life-threatening infections however oral vancomycin with IV metronidazole is normally advised in these cases. As this is an initial infection, without life-threatening features, first-line treatment in the form of oral vancomycin should be used.

Oral vancomycin and IV metronidazole is reserved for third-line or life-threatening cases of C. difficile. This treatment regime should only be used if oral vancomycin fails or the patient has features such as hypotension, ileus, or toxic megacolon.

Question:

Please look at the hands of this 50-year-old lady. She complains of tight, stiff fingers that turn white in the cold.

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What is the most likely diagnosis?

A.Osteoarthritis

B.Rheumatoid arthritis

C.Systemic lupus erythematosus

D.Cryoglobulinaemia

E.Limited cutaneous systemic sclerosis

Answer:Limited cutaneous systemic sclerosis

Explanation:

This patient has Sclerodactyly and Raynaud's phenomenon. Telangiectasia can also be seen on the hands. She therefore has the RST of CREST syndrome, or more accurately limited cutaneous systemic sclerosis.

Question:

A 72-year-old man is brought into the Emergency Department following a fall at home. He complains of pain around his hip but otherwise appears well. Past medical history includes type 1 diabetes mellitus (T1DM) and hypertension for which he takes insulin, ramipril and amlodipine. Capillary glucose is found to be 6 mmol/L.

Hb 136 g/L Male: (135-180)

Platelets 200 \* 109/L (150 - 400)

WBC 5.2 \* 109/L (4.0 - 11.0)

Na+ 141 mmol/L (135 - 145)

K+ 4.5 mmol/L (3.5 - 5.0)

Urea 7.5 mmol/L (2.0 - 7.0)

Creatinine 140 µmol/L (55 - 120)

Calcium 1.95 mmol/L (2.1-2.6)

Phosphate 1.5 mmol/L (0.8-1.4)

Creatine kinase 245 U/L (35 - 250)

What is the most likely cause of his renal impairment?

A.ACE inhibitor use

B.Chronic kidney disease

C.Dehydration

D.Myeloma

E.Rhabdomyolysis

Answer:Chronic kidney disease

Explanation:

Hypocalcaemia is an indication that kidney disease is chronic and not acute

Important for meLess important

Chronic kidney disease: differentiating between acute kidney injury and chronic kidney injury can be challenging. Looking beyond the raised creatinine is key to getting the correct answer. In chronic kidney disease, the kidneys cannot activate vitamin D effectively, meaning less calcium is absorbed from the gut, causing its levels to fall. The raised phosphate and low haemoglobin are also classic of chronic kidney disease. Lastly, the question mentions two important risk factors (hypertension and diabetes) for chronic kidney disease.

ACE inhibitor use: whilst this can lead to a prerenal acute kidney injury, the non-raised serum urea: creatinine ratio and the hypocalcaemia point towards an alternative diagnosis. In patients with chronic kidney disease, controlling BP and proteinuria are key to slowing the rate of renal decline. ACE inhibitors such as ramipril, therefore, have a key role in its management.

Dehydration: important cause of acute kidney injury. In this case, we don't know how long the patient lay without fluids, however, the serum urea: creatinine ratio is not raised. Furthermore, normal blood glucose levels make diabetic ketoacidosis unlikely.

Myeloma: whilst myeloma may cause renal failure, it is characteristically associated with hypercalcaemia.

Rhabdomyolysis: whilst a fall may lead to rhabdomyolysis and subsequent acute kidney injury, the normal creatine kinase makes this unlikely.

Question:

A 68-year-old female attends the emergency department with nausea, diarrhoea, confusion and blurred vision. She has a past medical history of osteoarthritis, heart failure and atrial fibrillation.

Her current medications include:

Adcal D3 2 tablets once daily

Amiodarone 200mg twice daily

Bisoprolol 5mg once daily

Digoxin 125mcg once daily

Losartan 12.5mg once daily

Paracetamol 1g four times daily

She was recently started on amiodarone by her general practitioner.

What is the likely reason for her presentation today?

A.Amiodarone toxicity

B.Delirium secondary to infection

C.Digoxin toxicity

D.Polypharmacy syndrome

E.Recognised adverse effects of amiodarone

Answer:Digoxin toxicity

Explanation:

Amiodarone may cause precipitation of digoxin toxicity - if starting amiodarone on a patient taking digoxin the dose should be reduced

Important for meLess important

Amiodarone is a class III antiarrhythmic medication used to treat ventricular tachycardia, atrial fibrillation, ventricular fibrillation, paroxysmal supraventricular tachycardia. Side effects include nausea, constipation, lethargy, tremor, interstitial pneumonitis, optic neuropathy, and corneal deposits.

Due to amiodarone inhibiting the action of cytochrome P450 enzyme, clearance of many drugs may be reduced. This includes:

Ciclosporin

Digoxin

Flecainide

Sildenafil

Simvastatin

Theophylline

Warfarin

Question:

Following an emergency Caesarian-section for foetal distress, the consultant obstetrician hands the paediatrician a normal term male neonate. You note that the neonate is apnoeic, floppy and blue in colour.

What should be your first action?

A.Administer atropine

B.Initiate cardiopulmonary resuscitation

C.Give two rescue breaths

D.Intubate and ventilate

E.Dry the neonate

Answer:Dry the neonate

Explanation:

The first step in neonatal resuscitation (according to UK resuscitation guidelines) is to dry the baby, remove any wet towels and start the clock/note time. The baby then needs a prompt (< 30 seconds) Apgar assessment before proceeding to rescue breaths and cardiopulmonary resuscitation if necessary. The administration of atropine and intubation are much later steps in the management.

Neonatal resuscitation guidelines

Birth: Dry the baby, remove any wet towels and cover and start the clock or note the time.

Within 30 seconds: Assess tone, breathing and heart rate.

Within 60 seconds: If gasping or not breathing - open the airway and give 5 inflation breaths

Re-assess: If no increase in heart rate look for chest movement

If chest not moving: Recheck head position, consider 2-person airway control and other airway manoeuvres, repeat inflation breaths and look for a response.

If no increase in heart rate look for chest movement

When the chest is moving: If heart rate is not detectable or slow (< 60 min-1) - start chest compressions with 3 compressions to each breath.

Reassess heart rate every 30 seconds. If heart rate is not detectable or slow (<60 beats per minute) consider venous access and drugs

References.

The Resuscitation Council (UK). Resuscitation and support of transition of babies at birth. 2015. https://www.resus.org.uk/resuscitation-guidelines/resuscitation-and-support-of-transition-of-babies-at-birth/

Question:

A 5-year-old with Down's syndrome is brought into your clinic for a health check. Although well in himself, for the past couple of weeks his parents have noticed difficulty hearing. Otoscopy reveals indrawn tympanic membranes with fluid levels and loss of light reflexes bilaterally. There is no evidence of inflammation and the examinations of the throat and nose are unremarkable.

What is the most appropriate next step for the above patient?

A.Reassurance only

B.Refer to ENT

C.Amoxicillin for 1 week

D.Recheck ears after 6 weeks

E.Recheck ears after 12 weeks

Answer:Refer to ENT

Explanation:

Children presenting with glue ear with a background of Down's syndrome or cleft palate should be referred to ENT

Important for meLess important

For the majority of children, otitis media with effusion (OME), or glue ear, can be managed by active observation over 6-12 weeks. Patients with Down's syndrome or cleft palate are less likely to recover spontaneously from OME, and therefore require immediate referral to ENT.

Providing only reassurance would be inappropriate for cases of OME, as it is important to follow up with patients who do not meet ENT referral criteria to check for resolution.

Although antibiotics should be considered for cases of acute otitis media, there is no convincing evidence of infection from the patient's history and examination. NICE advise that medications such as antibiotics, antihistamines and corticosteroids should not be prescribed for OME, as there is no evidence to support their use.

If the above patient did not have Down's syndrome, rechecking the ears after 6 to 12 weeks would be an appropriate response. If the OME had not resolved after 12 weeks then ENT referral would be warranted. During this observation period, it is important to encourage the continuation of normal play/activities including swimming (with the exception of diving).

Question:

A 54-year-old man is reviewed in the cardiology clinic. He has a diagnosis of stable angina and was started on isosorbide mononitrate 20mg twice daily at his last appointment. His other medication includes low dose aspirin, atorvastatin, bisoprolol, nifedipine and glyceryl trinitrate sublingual spray as required.

During the consultation he complains that at first his isosorbide mononitrate helped control his angina, however shortly after starting the medication he noticed his anginal symptoms began to recur.

What is the most appropriate next step in managing this patient's symptoms?

A.Add ivabradine

B.Increase dose of isosorbide mononitrate

C.Make no changes to current medication

D.Recommend asymmetric dosing regimen of isosorbide mononitrate

E.Switch nifedipine to verapamil

Answer:Recommend asymmetric dosing regimen of isosorbide mononitrate

Explanation:

Asymmetric dosing regimes should be used for standard-release ISMN to prevent nitrate tolerance

Important for meLess important

Recommend asymmetric dosing regimen of isosorbide mononitrate is correct. An asymmetric dosing regimen would involve taking the morning dose as normal, then taking the second dose in the early afternoon. This allows a sufficiently long nitrate-free period and helps reduce tolerance.

Add ivabradine is incorrect. Adding a third anti-anginal medication is recommended if calcium channel blocker therapy and beta-blocker therapy is insufficient. In this instance, however, the patient has already had a third anti-anginal medication added and rather than adding another drug it is more pragmatic to try and increase the benefit obtained from this.

Increase dose of isosorbide mononitrate is incorrect. Rather than increase dosages and therefore potential side effect burden, it may be possible to try and increase the benefit obtained from the isosorbide mononitrate by reducing the tolerance to this medication using asymmetric dosing.

Make no changes to current medication is incorrect. The patient is experiencing a recurrence of their anginal symptoms and should not be left in pain.

Switch nifedipine to verapamil is incorrect. If beta-blockers and calcium channel blockers are to be used in combination therapy, NICE recommends using a dihydropyridine calcium channel blocker. Verapamil and beta-blocker combination is not advised due to the risk of heart block.

Question:

A 14 week pregnant woman attends her GP describing significant contact 2 days ago with a friend's daughter, who has been diagnosed with chickenpox. When questioned, she informs the GP that she has never had chickenpox before. Her GP arranges serological testing for varicella zost virus (VZV), which confirms that she is non-immune. What would be the most appropriate management?

A.Aciclovir & varicella-zoster immunoglobulin (VZIG) as soon as possible

B.VZIG as soon as possible

C.No treatment needed, as more than 24 hours since contact occured

D.VZIG if she develops chickenpox rash

E.Varicella vaccine

Answer:VZIG as soon as possible

Explanation:

When contact occurs with chickenpox or shingles in a pregnancy, it is paramount to take a detailed history in order to confirm the significance of the exposure and susceptibility of the patient.

A individual with be potentially susceptible if they are uncertain or have no previous history of chickenpox. These patients should have their blood tested to determine VZV immunity or non-immunity. Significant exposure to chickenpox includes having face-to-face contact, being in the same room for 15 minutes of more, or in a large open ward. It is also important to enquire about contact before the chickenpox rash develops (as infectivity begins 2 days before the onset of the rash until lesions crust).

If exposure is deemed to be significant and the pregnant woman is non-immune, then VZIG should be given within 10 days of the exposure. The purpose of VZIG is to help prevent or attenuate chickenpox in non-immune individuals. VZIG has no therapeutic benefit once the chickenpox rash has started. Aciclovir can be given within 24 hours of the onset of the rash.

If a pregnant woman has a clear history of previous chickenpox, then no further action is required.

Varicella vaccination can be offered postpartum for women who are found to be non-immune to VZV. It is contraindicated in pregnancy, as it is a live vaccine.

RCOG Greentop guidelines, Chickenpox in pregnancy.

Question:

A 15-year-old girl of short stature presents to the GP as she hasn't started her period yet. On general examination, the GP notices that she has a wide neck. When examining her chest, the GP hears a murmur during systole.

Given the most likely diagnosis, what option from the choices below is this condition associated with?

A.Coarctation of the aorta

B.Mitral regurgitation

C.Mitral stenosis

D.Mitral valve prolapse

E.Tricuspid regurgitation

Answer:Coarctation of the aorta

Explanation:

Turner's syndrome is associated with aortic coarctation

Important for meLess important

Coarctation of the aorta is a congenital cardiac abnormality that is characterised by the narrowing of a section of the aorta. This results in an increase in afterload, which can present as a murmur during systole when auscultated. Aortic coarctation is commonly associated with Turner's syndrome. Additionally, the patient is presenting with amenorrhoea, making a diagnosis of Turner's syndrome more likely than the other options.

Mitral regurgitation is a pan-systolic murmur but it is not associated with Turner's syndrome.

Mitral stenosis is incorrect as it is a diastolic murmur.

Mitral valve prolapse is incorrect because it is not associated with Turner's syndrome. It is more likely to be associated with connective tissue disorders.

Tricuspid regurgitation is incorrect and is usually associated with left-sided heart failure.

Question:

A 67-year-old man presents to the Emergency Department in an ambulance. He complains of crushing chest pain that has been ongoing for the last 1 hour. There is a previous ECG from 2 months ago that is normal.

© Image used on license from Dr Smith, University of Minnesota

What is the most likely diagnosis?

A.Anterior myocardial infarction

B.Aortic dissection

C.Posterior myocardial infarction

D.Pulmonary embolism

E.Ventricular tachycardia

Answer:Anterior myocardial infarction

Explanation:

The most likely diagnosis, in this case, is an anterior myocardial infarction (MI).

It is important to assess the ECG thoroughly. The rate is 60 bpm, the rhythm is regular and there is no axis deviation. There are P waves present. There is a broad, downwardly deflected QRS complex in V1, indicating a left bundle branch block. This is new as a previous ECG was normal. A new left bundle branch block on an ECG, alongside symptoms consistent with MI, are diagnostic of ST-elevation MI. MI causing a new left bundle branch block is most likely to be anterior or anteroseptal. Thus, anterior MI is the most likely answer.

Aortic dissection is incorrect. In the case of aortic dissection, ECG can be normal or could show diffuse ST elevation. There is no sign of this on the ECG. The presenting symptoms are also more likely to be central, tearing chest pain.

Posterior myocardial infarction (MI) is incorrect. While new left bundle branch block alongside symptoms of MI is diagnostic of myocardial infarction, these are most likely to be anterior/anteroseptal MIs. Thus, this is not the most likely diagnosis.

Pulmonary embolism is incorrect. The most common ECG finding in pulmonary embolism is sinus tachycardia. Textbooks often cite the 'S1Q3T3 pattern' in pulmonary embolism, but this is rare.

Ventricular tachycardia (VT) is incorrect. In VT, one would expect to see a regular, broad complex (QRS complexes >0.12 seconds) tachycardia. This ECG does not resemble VT and the rate is normal (~60bpm). VT typically presents with symptoms such as chest pain, palpitations, and dizziness/presyncope.

Question:

A 47-year-old male has been nil by mouth for 3 days awaiting bariatric surgery that has been repeatedly postponed, he is to be prescribed IV dextrose to ensure his glucose requirements are being met.

His weight is 150kg, which of the following is an acceptable daily amount of glucose for him to be given?

A.25mg

B.100g

C.100mg

D.150g

E.150mg

Answer:100g

Explanation:

When prescribing fluids, the glucose requirement is 50-100 g/day irrespective of the patient's weight

Important for meLess important

100g is the only possible correct answer, his weight is irrelevant.

Question:

A 26-year-old primigravida presents at 39 weeks with rupture of membranes and bleeding. She describes a flood of cloudy fluid followed by continuous vaginal bleeding. She is very anxious but denies any localised pain or tenderness. Her pregnancy has so far been uncomplicated, but she has not attended her antenatal scans. Cardiotocography indicates bradycardia and late decelerations. What is the most likely diagnosis?

A.Placental abruption

B.Bloody show

C.Placenta accreta

D.Vasa praevia

E.Placenta praevia

Answer:Vasa praevia

Explanation:

Vasa praevia describes a complication in which fetal blood vessels cross or run near the internal orifice of the uterus. The vessels can be easily compromised when supporting membranes rupture, leading to frank bleeding.

The classic triad of vasa praevia is rupture of membranes followed by painless vaginal bleeding and fetal bradycardia. Unlike placenta praevia, vasa praevia carries no major maternal risk but fetal mortality rates are significant. The two conditions may be difficult to distinguish in acute clinical situations, but for examination purposes a preceding rupture of membranes will usually be emphasised. Although ultrasound scans can detect vasa praevia, many cases are undetectable antenatally.

Question:

A 4-year-old girl presents to the emergency department with marked elbow pain, after being pulled away from traffic in the road by her mother. She displays a reduced ability to supinate or extend at the elbow joint. There are no further concerning features on examination.

A presumptive diagnosis of radial head subluxation is made and confirmed upon x-ray imaging of the elbow.

The child has been given analgesia, which has helped in reducing the pain.

What is the most appropriate next management option?

A.Open reduction and internal fixation

B.K-wire fixation

C.Passive supination of the elbow joint whilst flexed to 90 degrees

D.Above elbow plaster cast and follow-up in fracture clinic

E.No further treatment necessary

Answer:Passive supination of the elbow joint whilst flexed to 90 degrees

Explanation:

Passive supination of the elbow joint whilst flexed to 90 degrees is the management for subluxation of the radial head

Important for meLess important

Radial head subluxation typically occurs due to 'pulling injuries' and is most common in young children. Management of the condition consists of pain management and reduction of the radial head into position by passive supination of the elbow joint at 90 degrees of flexion - therefore B is the correct option.

A - open reduction and internal fixation is typically used for serious unstable fractures and is not suitable in this case.

B - K-wire fixation are also used in displaced fractures and are unnecessarily invasive for this patient.

C - correct answer.

D - no fractures are present in this child, therefore cast immobilisation and fracture clinic follow up are not indicated.

E - there is functional limitation at the joint and significant pain, therefore an intervention is necessary.

Question:

A 72-year-old woman presents due to a productive cough. She has a past medical history of well-controlled myasthenia gravis on prednisolone.

Her chest x-ray shows consolidation and her ECG shows new atrial fibrillation. She is commenced on co-amoxiclav, bisoprolol, and apixaban. Furthermore, she is also commenced on Sando-K for potassium replacement and loperamide due to loose stool.

A few days into her admission her forced vital capacity drops.

What medication is most likely to have caused this?

A.Apixaban

B.Bisoprolol

C.Co-amoxiclav

D.Loperamide

E.Sando-K

Answer:Bisoprolol

Explanation:

Beta-blockers should be avoided if possible in patients with myasthenia gravis

Important for meLess important

Bisoprolol is the correct answer as this is a well-recognized beta-blocking medication that causes a worsening of myasthenia and the reason why her forced vital capacity (FVC) has dropped. As her FVC has dropped urgent neurology and intensive care review are indicated for potential respiratory support to be initiated.

Apixaban is incorrect as none of the new direct oral anticoagulants are associated with myasthenia crises.

Co-amoxiclav is incorrect as this is not one of the antibiotics known to exacerbate myasthenia. These are classically the aminoglycosides such as amikacin and gentamicin.

Loperamide is incorrect, as it is a mu-opioid receptor antagonist in the gut which slows gut motility. It is not known to affect the acetylcholine receptors and hence exacerbate myasthenia.

Sando-K is incorrect as a dissolvable potassium replacement salt it is not currently known to exacerbate myasthenia gravis.

Question:

A 36-year-old woman presents to her GP with symptoms of itching. She is currently 31 weeks pregnant and has no complications so far. She describes that, for the past few days, the palms of her hands and soles of the feet have been incredibly itchy. This sensation has since spread to the abdomen. Aside from this, she feels completely well in herself and denies nausea, vomiting or abdominal pain.

On examination, she appears well and there is no evidence of jaundice, nor any rash. Observations are within normal limits. Blood tests are generally unremarkable except for a mildly elevated bilirubin.

Given the likely diagnosis, which of the following is most appropriate to discuss with her regarding definitive management?

A.Caesarian section at 37 weeks

B.Induction of labour at 34 weeks

C.Induction of labour at 37 weeks

D.Reassurance and normal vaginal delivery at term

E.Ursodeoxycholic acid

Answer:Induction of labour at 37 weeks

Explanation:

Intrahepatic cholestasis of pregnancy increases the risk of stillbirth; therefore induction of labour is generally offered at 37-38 weeks gestation

Important for meLess important

The diagnosis here is that of obstetric cholestasis, which affects around 1% of pregnancies in the UK. She describes the usual intense pruritus and has raised bilirubin. Induction of labour at 37 weeks is widely offered to women, given the increased risk of stillbirth.

A caesarian section at 37 weeks is sometimes used as an alternative to induction at 37 weeks. However, the evidence is not clear on this, and so induction, rather than caesarian, is currently preferred.

Induction of labour at 34 weeks would also be too early.

Reassurance and normal delivery at term would also not be appropriate - a discussion around induction at 37 weeks should be had, given the increased risk of stillbirth.

Ursodeoxycholic acid is used for the treatment of symptoms of obstetric cholestasis and is usually effective. However, this question is asking specifically about the definitive management for the condition - while useful, ursodeoxycholic acid will not resolve the condition - only delivery will achieve this.

Question:

You are a looking after an elderly lady on the acute medical unit. She suffers from hypertension only. She has been admitted with an intracerebral bleed and is awaiting a neurosurgical bed for observation. However, during the day she becomes more unresponsive. She is localising and only opens eyes to pain. Which investigation is the most important in this situation?

A.CT angiogram of the cerebral blood vessels.

B.CT scan of the brain

C.Lumbar puncture

D.Urea and electrolytes

E.Arterial blood gas

Answer:CT scan of the brain

Explanation:

Patients with intracranial bleeds, who become unresponsive should receive an urgent CT scan to check for hydrocephalus

Important for meLess important

In these patients, CT of the brain can diagnose or rule out hydrocephalus quickly.

CT angiograms are normally used for locating the source of subarachnoid bleeds and are not indicated here.

Arterial blood will show if the patient is retaining carbon dioxide, and is appropriate for patients with COPD, but this lady has no underlying lung pathology.

Hyponatraemia is common in patients with intracranial bleeds but does not present in such a way. It is often asymptomatic but can cause seizures if the sodium is very low.

Lumbar punctures will give you a measurement of the intracranial pressure, but should not be done without a CT scan first in these patients.

Question:

A 52-year-old male attends the stroke unit with dizziness and vertigo while playing tennis. He is known to have hypertension and a previous myocardial infarct. He now complains of right arm pain. What is the most likely diagnosis?

A.Posterior circulation infarct

B.Vertebrobasilar aneurysm

C.Dissection of thoracic aorta

D.Subclavian steal syndrome

E.Left middle cerebral artery infarct

Answer:Subclavian steal syndrome

Explanation:

Subclavian steal syndrome characteristically presents with posterior circulation symptoms, such as dizziness and vertigo, during exertion of an arm. There is subclavian artery steno-occlusive disease proximal to the origin of the vertebral artery and is associated with flow reversal in the vertebral artery. Management involves percutaneous transluminal angioplasty or a stent.

Question:

A 45-year-old male presents to the neurology clinic with a two-month history of progressive speech and motor impairment with associated behavioural changes. He is HIV positive, having been diagnosed 10 years ago. As part of a panel of investigations, an MRI is ordered which identifies widespread demyelination.

Which of the following is the most likely cause of this patient's symptoms?

A.AIDS dementia complex

B.Cryptococcus infection

C.Primary CNS lymphoma

D.Progressive multifocal leukoencephalopathy (PML)

E.Toxoplasmosis

Answer:Progressive multifocal leukoencephalopathy (PML)

Explanation:

HIV, neuro symptoms, widespread demyelination - progressive multifocal leukoencephalopathy

Important for meLess important

The correct answer is progressive multifocal leukoencephalopathy (PML). Please note all answers are associated with immunosuppression.

Progressive multifocal leukoencephalopathy (PML) is a disease of widespread demyelination and is caused by infection of oligodendrocytes by JC virus. Usually harmless, the JC virus is rarely harmful in immunocompetent patients. However, as this patient is HIV positive, he is at increased risk of developing PML. Symptoms of PML often have a subacute onset and commonly include behavioural changes and speech, motor and visual impairment. MRI is the imaging modality of choice, identifying multifocal non-enhancing lesions, which represent widespread demyelination.

AIDS dementia complex is incorrect. This condition is caused by HIV itself and often presents with cognitive decline, behavioural changes and motor impairment. CT shows cortical and subcortical atrophy.

Cryptococcus infection is incorrect. This is the most common fungal infection of CNS and commonly presents with meningism, nausea/vomiting, seizures and focal neurological deficits. Lumbar puncture often shows a high opening pressure and cerebral oedema may be seen on CT.

Primary CNS lymphoma is incorrect. This is associated with the Epstein-Barr virus and presents with various symptoms depending on lesion location. CT often shows a single brain lesion with homogenous enhancement. Treatment generally involves steroids (may reduce tumour size), chemotherapy (e.g. methotrexate) and whole-brain irradiation. Surgical may be considered for lower grade tumours.

Toxoplasmosis is incorrect. This accounts for around 50% of cerebral lesions in patients with HIV and often presents with constitutional symptoms, headache and confusion. CT commonly shows multiple ring-enhancing lesions. Management is with sulfadiazine and pyrimethamine.

Question:

A 52-year-old man comes into the emergency department with his wife. He is unable to talk due to his tongue and lips being extensively swollen. His wife says that whilst they have been waiting these symptoms have become worse. She is unaware of what has caused this as he does not have any allergies but she knows that he has recently been started on a new medication by his GP.

Which of the following medications is the most likely cause?

A.Bisoprolol

B.Amlodipine

C.Omeprazole

D.Simvastatin

E.Ramipril

Answer:Ramipril

Explanation:

Given the mans age, it is possible that he could have been started on any of the medications listed, however he is clearly suffering from angioedema which can be noted by the swollen tongue and lips.

Out of the possibilities, this side effect is most commonly associated with ACE inhibitors - in this case, ramipril.

It is possible to develop angioedema despite having no previous allergies or previous adverse reactions to ACE inhibitors and although statistically the chances are low, due to the large numbers of patients on this type of medication and the potential complications that angioedema can cause, it should always be remembered.

Question:

A 34-year-old man with a history of ankylosing spondylitis presents with a painful right eye associated with mild photophobia:

Cycloplegic drops have recently been given. What is the most likely diagnosis?

A.Scleritis

B.Acute angle closure glaucoma

C.Anterior uveitis

D.Conjunctivitis

E.Episcleritis

Answer:Anterior uveitis

Explanation:

Ankylosing spondylitis is associated with anterior uveitis. The history of pain and photophobia combined with the examination findings of a red eye confirm the diagnosis

Note that the pupil in this image is dilated - this is not a typical finding at diagnosis but may reflect the fact that cycloplegic drops are commonly given to patients for pain relief

Question:

On the ICU ward round, you see a 74-year-old man who was admitted following a severe exacerbation of COPD, who is requiring ventilatory support.

The following blood tests for this patient were taken yesterday:

Calcium 2.3 mmol/L (2.1-2.6)

Phosphate 1.3 mmol/L (0.8-1.4)

Magnesium 0.9 mmol/L (0.7-1.0)

Thyroid stimulating hormone (TSH) 4.8 mU/L (0.5-5.5)

Free thyroxine (T4) 4.0 pmol/L (9.0 - 18)

Free T3 2.1 (4-7.4)

What is the most likely cause for these abnormalities?

A.De Quervain's thyroiditis

B.Hashimoto's thyroiditis

C.Sick euthyroid syndrome

D.Steroid therapy

E.Subclinical hypothyroidism

Answer:Sick euthyroid syndrome

Explanation:

Sick euthyroid syndrome = low T3/T4 and normal TSH with acute illness

Important for meLess important

Sick euthyroid syndrome is the correct answer. The low T3/T4 levels alongside an inappropriately normal TSH in the context of an acutely unwell patient is diagnostic of sick euthyroid syndrome. This is a common finding in unwell patients, especially among the elderly population.

De Quervain's thyroiditis is incorrect. This can have a phase where thyroid function tests show a hypothyroid picture, in this case, the TSH would be raised above normal levels. The clinical scenario with an acutely unwell patient makes sick euthyroid syndrome more likely.

Hashimoto's thyroiditis is incorrect. The TSH would be raised above normal levels due to long-term changes occurring here and is not most likely given the clinical context of an acutely unwell patient with low T3/T4 and normal TSH.

Steroid therapy is incorrect. This patient may well have received steroids due to their COPD treatment. However, this would lead to a low TSH and a normal T4 level, neither of which are present.

Subclinical hypothyroidism is incorrect. This would present on testing with a raised TSH and a normal T4.

Question:

A 54-year-old man is referred to the medical team for management of community-acquired pneumonia with associated postural hypotension causing collapse. He denies any head or long-bone injuries. He has a past medical history of hypertension, type 2 diabetes mellitus, and ischaemic heart disease. He is alcohol-dependent and has no fixed abode currently. Bloods show:

Na+ 128 mmol/L (135 - 145)

K+ 3.0 mmol/L (3.5 - 5.0)

Urea 19 mmol/L (2.0 - 7.0)

Creatinine 245 µmol/L (55 - 120)

What is the most likely medication to cause this derangement from the list below?

A.Amlodipine

B.Bumetanide

C.Labetalol

D.Metformin

E.Spironolactone

Answer:Bumetanide

Explanation:

Loop diuretics may cause hypokalaemia

Important for meLess important

This patient is presenting with pneumonia - due to his history of alcohol dependence, it is likely to be an atypical organism, such as Klebsiella. He is also noted to be hyponatraemic and hypokalaemic - this may be due to the bacterial infection as well as his bumetanide use. While he is unwell and hypokalaemic, his bumetanide should be held and fluid balance monitoring, regular blood tests, and potassium supplementation. With his potassium being 3.0mmol/L, he is at risk of cardiac arrhythmias secondary to his hypokalaemia and should have ECG and cardiac monitoring.

Amlodipine is a calcium channel blocker which is not known to cause hypokalaemia. It does not impact renal absorption of potassium (unlike bumetanide which blocks the Na+/K+/2Cl- co-transporters in the Loop of Henle) and does not need withholding.

Labetalol may be used by this patient in the management of their hypertension. This drug is associated with hyperkalaemia, rather than hypokalaemia. This is particularly pertinent in patients who have renal insufficiency - considering this patient's creatinine and urea levels, this patient may have chronic kidney disease (CKD) and is, therefore, more vulnerable to hyperkalaemia. Hyperkalaemia in patients on beta-blocker therapy is, however, extremely rare. The exact mechanism for beta-blocker-induced hyperkalaemia is believed to be the inverse of beta-adrenergic agonists which drive potassium into cells via increasing the activity of the Na-K pump.

Metformin is used to manage type 2 diabetes mellitus and may require holding if the patient has a significant acute kidney injury. While it may be appropriate to consider if this medication should be held due to the deranged creatinine, it is unlikely that this drug has caused the electrolyte derangement and, as such, is an incorrect answer.

Spironolactone is a potassium-sparing diuretic which is used in the management of oedema and hypertension. It is not associated with hypokalemia and is more likely to cause hyperkalemia as it competitively binds to aldosterone receptors in the distal convoluted tubule to reduce potassium excretion.

Question:

An 18-year-old man presents to his GP with persistent facial weakness. He was treated 4 weeks ago for suspected Bell's palsy at which point he was given a steroid regime and artificial tears. The patient was given a repeat course of steroids 2 weeks ago. He reports no improvement in his symptoms at all, but equally no worsening. He states there has been no change in his paralysis, and his taste is still altered.

On examination, there is left-sided facial paralysis, including the forehead. There is no rash visible, otoscopy is unremarkable and an examination of the eyes is reassuring. A cranial nerve examination reveals no other abnormalities.

What is the most appropriate next step in his management?

A.Admit immediately to hospital

B.Urgent referral to ENT

C.Routine referral to ENT

D.Repeat course of steroids

E.Prescribe course of aciclovir

Answer:Urgent referral to ENT

Explanation:

For a patient with a Bell's palsy, if the paralysis shows no sign of improvement after 3 weeks, refer urgently to ENT

Important for meLess important

This man has presented with findings consistent with persistent Bell's palsy, which has not responded to recommended treatment.

Urgent referral to a specialist dealing with facial nerve paralyses, such as ENT or neurology, is indicated in the following circumstances:

Worsening or new neurological findings

Red flag features of cancer

No sign of improvement after 3 weeks of treatment

Symptoms of aberrant reinnervation 5 months or more after original onset

Unclear diagnosis

Therefore, since this man has had persistent paralysis despite treatment for over 3 weeks, an urgent (2 week) referral to ENT is the most appropriate next step in his management.

Admitting immediately to the hospital is incorrect. This may be appropriate if facial nerve paralysis is presumed to be due to a cerebrovascular event, but given the prolonged nature of this man's presentation, and his young age, this is unlikely.

A routine referral to ENT is incorrect. Given the long national wait times for ENT referrals (i.e. several months), a condition that may become progressively worse or represent something more sinister should be referred urgently, not routinely.

A repeat course of steroids is incorrect as this would be inappropriate to offer within primary care, without seeking specialist input.

A course of aciclovir is incorrect as this is not recommended in Bell's palsy unless there is specialist input.

Question:

A 78-year-old man arrives at the emergency department with reduced consciousness. He is given penicillin as part of treatment for pneumonia. Within minutes, his oxygen saturation drops from 93% to 70%, his blood pressure drops to 83/44 mmHg, and you hear him become increasingly stridulous. You administer first-line therapy as part of the advanced life support algorithm.

What is the most appropriate way to deliver this medication?

A.Intramuscular injection into the gluteus maximus

B.Intramuscular injection into the vastus lateralis

C.Intravenous bolus

D.Intravenous infusion

E.Subcutaneous injection into the gluteus maximus

Answer:Intramuscular injection into the vastus lateralis

Explanation:

IM adrenaline should be injected in the anterolateral aspect of the

middle third of the thigh

Important for meLess important

Intramuscular injection into the vastus lateralis is the correct answer. During anaphylaxis, acute administration of intramuscular adrenaline can be life-saving. It should be delivered into the anterolateral aspect (vastus lateralis) of the middle third of the thigh. In an adult, the dose is 0.5mg of adrenaline 1:1000 (1mg/1ml).

Intramuscular injection into the gluteus maximum is incorrect. Whilst the route is appropriate, the administration site should be the anterolateral aspect of the thigh. The systemic absorption from the gluteus maximus muscle is lower than the vastus lateralis, hence why, during an emergency, it is not preferred.

Intravenous bolus is incorrect. Intravenous bolus administration of adrenaline has its role, generally within cardiac arrest or intensive care settings. In this clinical situation, it risks causing malignant cardiac arrhythmias. Remember, the dose of adrenaline used is greater for anaphylaxis than for cardiac arrest due to the strength used (1 in 1000, rather than 1 in 10,000).

Intravenous infusion is incorrect. The advanced life support algorithm for anaphylaxis advises IM adrenaline, which can be repeated after five minutes. If, after this time, the patient has not improved, then intubation and more invasive therapies should be considered, which may include the administration of intravenous adrenaline.

Subcutaneous injection into the gluteus maximus is incorrect. Administration of adrenaline via the subcutaneous route does not have a role in treating acute anaphylaxis.

Question:

Which one of the following is not a recognised adverse effect of the combined oral contraceptive pill?

A.Increased risk of ovarian cancer

B.Increased risk of deep vein thrombosis

C.Increased risk of breast cancer

D.Increased risk of ischaemic heart disease

E.Increased risk of cervical cancer

Answer:Increased risk of ovarian cancer

Explanation:

Combined oral contraceptive pill

increased risk of breast and cervical cancer

protective against ovarian and endometrial cancer

Important for meLess important

The combined oral contraceptive pill has actually been shown to reduce the risk of ovarian cancer

Question:

What is the most appropriate way to confirm a diagnosis of pertussis?

A.Blood cultures

B.Sputum culture

C.Per nasal swab

D.Urine for serology

E.Throat swab

Answer:Per nasal swab

Explanation:

Question:

A 69-year-old female on the respiratory ward was admitted with a pulmonary embolism one week ago. This was her second pulmonary embolism, the first one occurring two months ago. She had been on warfarin prior to her admission. Her current dose of warfarin is 5mg and he INR today is 2.6. She has a past medical history of aortic stenosis and has a bioprosthetic aortic valve in situ.

What is the most appropriate action to take?

A.Continue on warfarin at same dosage

B.Change warfarin to rivaroxaban

C.Reduce warfarin to 4.5mg

D.Change warfarin to dabigatran

E.Increase dose of warfarin to 5.5mg

Answer:Increase dose of warfarin to 5.5mg

Explanation:

As the patient suffers from recurrent pulmonary embolisms, her target INR is 3.5. Therefore the patients warfarin dose should be increased to 5.5mg.

With regards to bioprosthetic valves, long-term warfarin is not required in absence of atrial fibrillation. However patients with bioprostheses in the mitral position should receive oral anticoagulants to achieve an INR of 2.5 for the first 3 months. Oral anticoagulants are not required for valves in the aortic position in patients in sinus rhythm, although many centres anticoagulate patients for 3-6 months after any tissue valve implant.

Question:

A 70-year-old is being investigated for a six-month history of a progressive cough, occasional episodes of haemoptysis, generalised body and abdominal pain with significant weight loss. He has smoked from a young age and has a 25-pack-year history.

A mass is identified on chest x-ray, and bronchoalveolar lavage cytology confirms a non-small-cell lung carcinoma with squamous appearing tumour cells.

What paraneoplastic syndrome is most commonly associated with this patient's cancer?

A.Cushing’s syndrome

B.Gynaecomastia

C.Lambert-Eaton syndrome

D.Parathyroid hormone-related protein secretion

E.SIADH

Answer:Parathyroid hormone-related protein secretion

Explanation:

PTHrP is a paraneoplastic syndrome associated with squamous cell lung cancer

Important for meLess important

The patient in the vignette has features of squamous cell carcinoma (SCC) of the lung. This non-small-cell lung carcinoma originates in the bronchi and is strongly linked to tobacco smoke. SCCs are associated with several paraneoplastic syndromes, including parathyroid hormone-related protein (PTHrP) secretion. PTHrP can cause significant hypercalcaemia as this protein mimics parathyroid hormone, increasing bone and renal reabsorption. Patients with the condition will have a raised serum calcium level and may present with symptoms including bone and abdominal pain, kidney stones and low mood. Other paraneoplastic features of lung SCC include hypertrophic pulmonary osteoarthropathy and hyperthyroidism due to ectopic thyroid-stimulating hormone release.

Cushing’s syndrome is a collection of signs and symptoms secondary to prolonged glucocorticoid exposure and can present as part of a paraneoplastic syndrome due to increasing adrenocorticotropic hormone (ACTH) release. Increased ACTH release is more commonly associated with small cell carcinomas, not squamous cell carcinomas, as in this case.

Gynaecomastia is the abnormal, non-cancerous enlargement of one or both breasts in men and can present due to several different conditions, including as part of a paraneoplastic syndrome. Gynaecomastia is generally associated with adenocarcinomas, not SCC, and is thought to be due to an increased oestrogen/androgen ratio secondary to sex hormone release.

Lambert-Eaton syndrome is a rare autoimmune condition, similar to myasthenia gravis, characterised by limb muscle weakness which is classically temporarily relieved after exertion/physical exercise. The condition is generally considered a paraneoplastic syndrome, with most patients having an underlying malignancy, the commonest of which is small-cell lung cancer. The condition is not commonly associated with SCCs as in this case.

Syndrome of inappropriate antidiuretic hormone secretion (SIADH), as the name suggests, is a result of excess ADH release, causing an increase in water reabsorption from the kidneys and hyponatraemia. As a paraneoplastic syndrome, SIADH is generally associated with small cell cancer, not SCC.

Question:

A 3-year-old is brought by his Mum to your surgery. He has had a fever and has been refusing to eat. Mum has noticed some spots on his hands and buttocks. On examination, the child has a mild vesicular rash on the hands, buttocks, face and a few spots on his ankles. His temperature is 38.1ºC. Your records state that he had chicken pox when he was 9 months old. What is the most likely diagnosis?

A.Roseola Infantum

B.Chicken pox

C.Foot and mouth disease

D.Hand, foot and mouth disease

E.Measles

Answer:Hand, foot and mouth disease

Explanation:

Hand, foot and mouth disease is a viral infection that commonly affects children under 10 years. The symptoms are fever, anorexia, cough, abdominal pain and sore throat. Mouth ulcers commonly follow with a rash that classically affects hands and feet but also face, buttocks, legs and genitals. It is generally a benign self-resolving condition treated with simple analgesia.

http://www.nhs.uk/Conditions/Hand-foot-and-mouth-disease/Pages/Introduction.aspx

Question:

A 23-year-old man presents to his general practitioner with a one week history of pain on urination and a pus-like discharge from the end of his penis. There is no history of haematuria, fever, abdominal pain or joint pain and the patient is otherwise well. He is sexually active and has had penetrative sex with three women in the past two months.

Examination of the genitalia is unremarkable.

Given the most likely diagnosis, which investigation is most appropriate?

A.Collection of discharge for microscopy and culture

B.Full blood count and liver function tests

C.Mid-stream urinalysis

D.Nucleic acid amplification tests on first-catch urine sample

E.Urethral swab

Answer:Nucleic acid amplification tests on first-catch urine sample

Explanation:

Chlamydia trachomatis infection is a common cause for non-specific urethritis (dysuria +/- urethral discharge)

Important for meLess important

The most likely diagnosis here is chlamydia, although there may also be concomitant gonorrhoea infection. Chlamydia is diagnosed using nucleic acid amplification tests (NAAT). Both urethral swab and first-catch urine samples can be used for NAAT. As first catch urine is as sensitive and less invasive than a urethral swab, this is the investigation of choice.

Mid-stream urinalysis would be an appropriate investigation for a urinary tract infection, but the lack of haematuria or abdominal pain and presence of urethral discharge make this a less likely diagnosis than chlamydia infection.

Collection of discharge for microscopy and culture may be useful in the diagnosis of bacterial vaginosis.

Full blood count and liver function tests are not useful in the diagnosis of chlamydia, although in a female patient with advanced chlamydia who has developed pelvic inflammatory disease, these tests may be important in diagnosing Fitz Hugh Curtis syndrome.

Question:

A 62-year-old patient who has not had a hysterectomy attends her GP surgery for review of her hormone replacement therapy (HRT). Her HRT regime currently consists of an estradiol patch (which she changes once weekly) and norethisterone (an oral daily tablet).

What is the main counselling point that the patient must be aware of regarding taking progestogens?

A.Increased risk of breast cancer

B.Increased risk of endometrial cancer

C.Increased risk of lung cancer

D.Increased risk of ovarian cancer

E.May decrease blood pressure

Answer:Increased risk of breast cancer

Explanation:

HRT: adding a progestogen increases the risk of breast cancer

Important for meLess important

Progestogens carry the increased risk of breast cancer, venous thromboembolism and cardiovascular disease.

Hormone replacement therapy (HRT) should be considered for patients presenting with vasomotor symptoms such as hot flushes, night sweats and palpitations in menopause.

If a patient only presents with urogenital symptoms, topical oestrogens may be appropriate (e.g. oestradiol creams or pessaries). Topical oestrogens act locally to reduce vaginal dryness, reduce UTI recurrence, reduce dyspareunia.

If a patient presents with vasomotor symptoms, HRT preparations with systemic effects (oral medications, topical patches and implants) should be considered.

If the patient has not had a hysterectomy, their HRT regime must include oestrogen and progestogen. This is because unopposed oestrogen therapy causes hypertrophy of the uterus and a 5-10x increased risk of endometrial carcinoma.

Question:

A 24-year-old woman presents to the Emergency Department after an episode of palpitations, that resolved after 2 minutes. At triage her temperature was 37.2ºC, oxygen saturation 98% on air, heart rate 96 beats per minute, respiratory rate 18 breaths per minute and blood pressure 110/70 mmHg. Her ECG showed sinus rhythm with a QTc of 510ms.

She has asthma and a recently diagnosed chlamydia infection for which she's receiving treatment.

While being assessed, she has another episode of palpitations. A repeat ECG shows polymorphic ventricular tachycardia.

What medication has likely induced this presentation?

A.Amiodarone

B.Amoxicillin

C.Doxycycline

D.Erythromycin

E.Magnesium

Answer:Erythromycin

Explanation:

Macrolides can cause torsades de pointes

Important for meLess important

This patient has presented after experiencing an episode of palpitations that resolved spontaneously after 2 minutes. On initial assessment, she was stable with an ECG showing normal sinus rhythm with a prolonged corrected QT interval. She then had a further episode of Torsades de Pointes (TdP), this time captured on ECG.

Erythromycin is a macrolide antibiotic that can be used to treat chlamydia infections. It carries a risk of TdP which is a polymorphic ventricular tachycardia with a gradual change in QRS amplitude. The QRS complexes twist around the isoelectric line. Erythromycin can prolong the QTc by inhibition of the delayed rectifier potassium channel. An ectopic beat during this prolonged repolarization phase can result in TdP. This is very rare but is an important risk to be aware of. Azithromycin is a more common treatment for chlamydia. It is known to prolong the QTc but whether it causes TdP is disputed in the literature.

While amiodarone has the potential to cause QTc prolongation and precipitate TdP, it would not be used in the management of asthma or chlamydia. Amiodarone is used in the treatment of monomorphic ventricular tachycardia. This patient's initial ECG showed sinus rhythm, so amiodarone would not have been indicated.

Amoxicillin is a β-lactam antibiotic. It can be used to treat chlamydia in pregnancy. It is not known to cause TdP or prolonging of the QTc.

Doxycycline is a tetracycline antibiotic. It is usually the first-line antibiotic in the treatment of chlamydia, however, this may vary between localities. It is not known to cause TdP or a prolonged QTc.

Magnesium is the treatment for TdP. 2g of magnesium should be given IV over 10 minutes. Defibrillator pads should be attached to the patient's chest. If there are any signs of instability such as chest pain, syncope, heart failure or hypotension, a synchronised shock should be given.

Question:

A 7-year-old boy presents to the GP as he does not seem to be developing in the same way as his classmates. He is now a lot taller than most of his friends and he has started to develop hair around his genitalia and armpits. On examination, his penis is also large for his age however his testes remain prepubertal, with a size of 2.4cm.

Which of the following is the most likely cause of this boy's precocious puberty?

A.An astrocytoma

B.A sex cord–gonadal stromal tumour

C.Testotoxicosis

D.Adrenal hyperplasia

E.Idiopathic precocious puberty

Answer:Adrenal hyperplasia

Explanation:

Small testes in precocious puberty indicate an adrenal cause of the symptoms

Important for meLess important

In the case of precocious puberty, it is helpful to assess the size of the testicles as to ascertain the cause. As stated below if the testicles are small (like in this case) it indicates an adrenal cause of the problem. The only option on the list that is an adrenal cause is option 4 and so this is the answer.

An astrocytoma or any other form of brain tumour would cause central precocious puberty and this would cause bilateral testicular enlargement

Testotoxicosis would cause advanced development in all areas and would be associated with a history of sexual aggression during childhood

A sex cord-gonadal stromal tumour would cause unilateral enlargement of the affected testicle

An idiopathic cause of precocious puberty would cause advanced development in all areas of pubertal development and thus the testicles would be enlarged.

Question:

A 66-year-old man presents to the emergency department with retrosternal chest pain, radiating to the back and epigastrium. He also complains of dyspnea. His symptoms were preceded by an episode of vomiting. The man has a past medical history of alcohol dependence and liver cirrhosis.

His observations are as follows:

Temperature 38.3ºC

Respiratory rate 28/min

Blood pressure 102/58mmHg

Heart rate 123bpm

Oxygen saturations 92%

On examination, palpation reveals suprasternal crepitus and lung auscultation reveals coarse crackles in the right lower lung fields. A chest x-ray is performed and shows a right-sided pleural effusion. ECG is unremarkable.

Based on the clinical picture, what is the most likely diagnosis?

A.Acute pancreatitis

B.Aortic dissection

C.Oesophageal perforation

D.Papillary muscle necrosis

E.Mallory-Weiss syndrome

Answer:Oesophageal perforation

Explanation:

Vomiting → severe chest pain, shock - Boerhaave syndrome

Important for meLess important

The most likely diagnosis, in this case, is transmural oesophageal perforation secondary to an episode of forceful emesis - also known as Boerhaave's syndrome. This condition typically presents with a triad of vomiting/retching; severe retrosternal chest pain, typically radiating to the back and subcutaneous emphysema. This is known as the Mackler triad, the latter component of which is evidenced by the suprasternal crepitus felt upon palpation in this patient.

Vital sign abnormality in this patient is seen due to mediastinitis that occurs due to contamination of the mediastinum with oesophageal/ gastric contents. This can lead to overwhelming sepsis and, if left untreated, death. Exudative pleural effusions are also commonly seen, once again, secondary to the extra-oesophageal presence of gastric material.

Acute pancreatitis may present with severe, radiating epigastric pain; breathlessness, secondary to acute respiratory distress syndrome and sepsis with vital sign abnormality. However, subcutaneous emphysema on examination and the recent bout of emesis would not typically be documented.

Aortic dissection may present with chest pain radiating to the inter-scapular region. However subcutaneous emphysema, pleural effusion and the recent episode of vomiting point away from this diagnosis. Also, the degree of vital abnormality may be greater and there would be a more significant vasculopathic history, for example, the patient would have a significant smoking history, with a background of hypertension and hypercholesterolaemia.

Papillary muscle necrosis resulting in mitral valve prolapse, secondary to a myocardial infarction could present with central chest pain and breathlessness secondary to pulmonary oedema. However, in this case, the ECG does not show ischaemic changes, nor does the chest radiograph exhibit pulmonary oedema. Although the vomiting might occur secondary to autonomic arousal and nausea associated with myocardial infarction, subcutaneous emphysema would not be part of the clinical picture.

Mallory-Weiss tear is a non-transmural tear of the oesophagus caused by repeated vomiting. In this case, due to the superficiality of the tear, there would not be evidence of systemic upset, subcutaneous emphysema and the typical complaint is usually mild haematemesis.

Question:

A 36-year-old woman presents to a sexual health clinic complaining of a lesion on her vulva that has been present for 2 weeks. She reports no other symptoms and has no medical history with no regular medications and no known allergies.

Examination reveals a single ulcer on the left labia majora. The patient denies pain and examination is otherwise unremarkable.

She engages in regular, unprotected oral and vaginal intercourse with her husband of 4 years.

Given the most likely diagnosis, what is the most appropriate management?

A.IM benzathine benzylpenicillin

B.IM ceftriaxone

C.Oral aciclovir

D.Oral azithromycin

E.Oral doxycycline

Answer:IM benzathine benzylpenicillin

Explanation:

Primary syphilis is associated with painless ulceration

Important for meLess important

IM benzathine benzylpenicillin is the correct answer. This patient has presented with likely primary syphilis, often associated with a single painless ulcer, known as a chancre. These ulcers typically self-resolve within 3-6 weeks but must be treated with antibiotics to prevent the infection from developing. It is important not to rule out sexually transmitted infections only on the basis that a patient has a regular partner. A single dose of IM benzathine benzylpenicillin is used first-line in the treatment of primary syphilis.

IM ceftriaxone is incorrect. IM ceftriaxone may be used in the management of uncomplicated gonorrhoea but is not used to treat syphilis. Gonorrhoea is unlikely to cause ulceration, and would instead present with vaginal discharge, dysuria, and/or intermenstrual bleeding. As this patient has presented with a single, painless ulcer on a background of unprotected intercourse, primary syphilis is the most likely diagnosis.

Oral aciclovir is incorrect. This is used in the treatment of herpes simplex virus, which presents with painful, as opposed to painless, ulceration. As this patient has a painless ulcer, primary syphilis is the more likely diagnosis.

Oral azithromycin is incorrect. This patient has presented with a painless genital ulcer on a background of unprotected intercourse - this is typical of primary syphilis. Azithromycin may be used to treat uncomplicated gonorrhoea or chlamydial infection. These infections are very unlikely to present with ulceration and would instead likely cause vaginal discharge, dysuria, and/or intermenstrual bleeding. Azithromycin is not used in the management of primary syphilis.

Oral doxycycline is incorrect. This patient has likely primary syphilis given the presence of a painless genital ulcer and a history of unprotected intercourse. High-dose doxycycline is occasionally used second-line in penicillin-allergic patients, but evidence of its efficacy is weak. As this patient has no known drug allergies, she should instead be offered a single dose of IM benzylpenicillin.

Question:

A newborn is due for her hearing screening test. She was born at 36 weeks with no complications during the pregnancy, via a normal vaginal delivery. Which of the following tests is most appropriate to use in a child of this age?

A.Distraction testing

B.Audiometry

C.Performance & speech discrimination testing

D.Automated otoacoustic emissions

E.Visual reinforcement audiometry

Answer:Automated otoacoustic emissions

Explanation:

Otoacoustic emission test is used to screen newborns for hearing problems

Important for meLess important

There are various hearing tests available, and each is most suitable for a different age group. Newborn babies in the UK are usually screened using a test called the 'automated otoacoustic emissions test' or 'evoked otoacoustic emissions test', with the second test in case of abnormalities being the 'automated auditory brainstem response test'.

The rest of the options mentioned are used for older children.

(NHS UK)

Question:

A 72-year-old woman is brought into the emergency department following a fall. Her left arm appears swollen and, upon further imaging, a displaced mid-shaft humeral fracture is diagnosed.

What nerve is most likely to be damaged as a result of this fracture, and how would this present clinically?

A.Axillary nerve, loss of sensation over the 'sergeant patch' region of the shoulder

B.Radial nerve, inability to flex the 1st, 2nd and 3rd digits of the hand

C.Radial nerve, wrist drop

D.Ulnar nerve, inability to extend the 4th and 5th digits of the hand

E.Ulnar nerve, loss of sensation on the dorsum of the hand over the thumb and index finger

Answer:Radial nerve, wrist drop

Explanation:

Wrist drop is clinical sign that may be found with a mid shaft humeral fracture

Important for meLess important

Radial nerve, wrist drop is the correct answer. The radial nerve runs in the radial groove of the mid-shaft of the humerus, therefore it is very vulnerable to damage in a mid-shaft humeral fracture. The radial nerve innervates the extensor muscles of the wrist (amongst other things), therefore damage to the radial nerve would result in a wrist drop.

Axillary nerve is incorrect as it is located near the proximal humerus, so is less likely to be affected by a mid-shaft humeral fracture. Damage to the axillary nerve does cause loss of sensation over the 'sergeant patch' region of the shoulder, amongst other things.

'Radial nerve, inability to flex the 1st, 2nd and 3rd digits of the hand' is incorrect as the clinical presentation does not match that damaged nerve. Inability to flex the 1st, 2nd and 3rd digits of the hand is the characteristic finding in 'the hand of benediction' which is seen in median nerve injuries.

Ulnar nerve, inability to extend the 4th and 5th digits of the hand describes the 'ulnar claw'. Ulnar nerve damage is far less likely than radial nerve damage in the context of a mid-shaft humeral fracture, therefore this answer is incorrect.

Ulnar nerve, loss of sensation over the dorsum of the hand on the thumb and index finger is incorrect as the clinical presentation does not match the damaged nerve. Loss of sensation on the dorsum of the hand over the thumb and index finger is a finding in radial nerve injury.

Question:

A 52-year-old male is admitted to the acute medical admissions unit with a 1-day history of a left-sided headache, retro-orbital pain, and dull left-sided facial pain. He has a history of hypertension and migraine and takes ramipril 2.5mg.

On examination, he has a partial ptosis and enophthalmos of the left eye. Pupil examination demonstrates anisocoria with miosis of the left eye. His visual acuity is 6/6 bilaterally and the remainder of neurological examination is normal with normal sweating bilaterally.

What is the single most likely cause of these symptoms?

A.Carotid artery dissection

B.Cervical rib

C.Pancoast's tumour

D.Stroke

E.Syringomyelia

Answer:Carotid artery dissection

Explanation:

Horner's syndrome - anhydrosis determines site of lesion:

head, arm, trunk = central lesion: stroke, syringomyelia

just face = pre-ganglionic lesion: Pancoast's, cervical rib

absent = post-ganglionic lesion: carotid artery

Important for meLess important

This case represents a partial horner's syndrome. Horner's syndrome classically presents with ipsilateral ptosis, miosis, and anhidrosis. The degree of anhidrosis helps determine the location of the lesion along the sympathetic pathway.

Carotid artery dissection typically presents with ipsilateral pain and in this case, it was the cause of a partial horner's syndrome with ipsilateral ptosis and miosis, in the absence of anhidrosis. Although horners syndrome is an uncommon presentation of carotid artery dissection it is documented in case reports and important to recognise to avoid further neurological consequences such as an ischaemic stroke.

A cervical rib or Pancoast tumour cause pre-ganglionic interruption of the sympathetic chain. In addition to ptosis and miosis, they would cause anhidrosis of just the face.

A stroke or syringomyelia are central lesions. If they caused a horner's syndrome then in addition to ptosis and miosis, there would be anhidrosis of the head, arm ad trunk.

Question:

A 45-year-old woman presents to her general practitioner. Her sister has recently died because of a berry aneurysm rupture, related to her autosomal dominant polycystic kidney disease. The woman is concerned about having the disease as well. The doctor decides to complete a full abdominal, cardiovascular and respiratory examination, together with collecting a set of vital signs and performing a urine dipstick. Following the examination, the doctor suspects that the woman has the disease and decides to refer her to the renal clinic.

What finding is the most likely to having been found?

A.Aortic stenosis

B.Glycosuria

C.Hepatomegaly

D.Hypotension

E.Splenomegaly

Answer:Hepatomegaly

Explanation:

ADPKD is associated with hepatomegaly (due to hepatic cysts)

Important for meLess important

The correct answer is hepatomegaly. This patient has a family history of autosomal dominant polycystic kidney disease (ADPKD), making her likely to have the disease. Liver cysts are the most common extra-renal manifestation of the disease, present in 70% of the cases, and may cause hepatomegaly.

Aortic stenosis is incorrect, as ADPKD has been associated with mitral valve prolapse, mitral or tricuspid incompetence, aortic root dilation, and aortic dissection but not with aortic stenosis.

Glycosuria is incorrect, as ADPKD is associated with haematuria. It is often grossly visible, usually occurs prior to loss of kidney function, and it may be the presenting symptom of the disease. The rupture of a cyst into the collecting system is thought to be responsible for the development of haematuria.

ADPKD has been associated with hypertension, not with hypotension. The underlying mechanism is unclear, but it is thought to be due to the renin-angiotensin-aldosterone system over-activation due to the growing renal cysts.

Splenomegaly is incorrect. Although cysts can form in every organ in ADPKD, it is extremely rare that they form in the spleen. Hence, it is much more likely that the cysts were found in the liver rather than the spleen.

Question:

A 54-year-old woman who was previously well presents to the emergency department with a 3-week history of right-sided hip pain. She is otherwise well, and is able to walk, though is limping slightly. The pain is worse when she rolls onto that side during the night, and thus hasn't been sleeping well.

On examination, she has tenderness over the lateral aspect of the right hip and has pain on internal and external rotation of the hip.

Blood tests demonstrate the following:

Hb 144 g/L Male: (135-180)

Female: (115 - 160)

WBC 10.2 \* 109/L (4.0 - 11.0)

CRP 25 mg/L (< 5)

What is the most likely diagnosis?

A.Avascular necrosis of the femoral head

B.Osteoarthritis

C.Septic arthritis

D.Slipped upper femoral epiphysis

E.Trochanteric bursitis

Answer:Trochanteric bursitis

Explanation:

Trochanteric bursitis presents with isolated lateral hip/thigh pain with tenderness over the greater trochanter

Important for meLess important

This woman presents with a history of hip pain, characterised by tenderness over the greater trochanter, a mildly raised CRP, and a lack of systemic symptoms. This is characteristic of trochanteric bursitis. It is generally treated with physiotherapy, anti-inflammatory drugs, and cortisol injections. It can be associated with a localised infection, but this is generally associated with systemic upset and markedly raised infective markers.

Avascular necrosis of the femoral head results from an interruption in the blood supply to the head of the femur. It can be traumatic or non-traumatic. Non-traumatic causes include diabetes, HIV, lupus, and chronic renal failure. It is not usually associated with tenderness over the greater trochanter, and there is no history of either trauma or a non-traumatic cause for this patient's symptoms. It is not the correct answer in this case.

Osteoarthritis is unlikely, as the patient is reasonably young, the onset is relatively rapid, and the pain is mostly on pressure over the trochanter. Further, it is generally not associated with elevated CRP or such a rapid onset.

Septic arthritis is a serious condition caused by an infection in a joint. Typically this is due to spread from an extra-articular infection, such as pneumonia or cellulitis. It is commonly associated with marked systemic upset, elevated inflammatory markers, and rapid progression (hours to days)

Slipped upper femoral epiphysis is a condition affecting children; largely, overweight children. It presents as a painful limp. Adults, in whom the femoral epiphysis is fused to the rest of the femur, cannot develop this condition. It is therefore not the correct answer in this case.

Question:

A 21-year-old student presents with a months' history of episodic, retrosternal chest pain. Each episode lasts for half an hour and is accompanied by dizziness and shortness of breath. He denies any triggers, but thinks it is exacerbated by lying down. There is no past medical or family history and he is not on any medications. Physical examination and observations are normal.

The 12-lead ECG shows ST-elevation in all leads.

Hb 160 g/L Male: (135-180)

Female: (115 - 160)

Platelets 380 \* 109/L (150 - 400)

WBC 14.1 \* 109/L (4.0 - 11.0)

Troponin 0.01 ng/mL (<0.04)

What is the most appropriate next investigation?

A.Repeat full blood count

B.D-dimer

C.CT pulmonary angiogram

D.Chest X-ray

E.Transthoracic echocardiography

Answer:Transthoracic echocardiography

Explanation:

All patients with suspected acute pericarditis should have transthoracic echocardiography

Important for meLess important

The history together with the ECG findings (ST-elevation in all leads signifies a global problem, and the elevation would be 'saddle-shaped'), is consistent with acute pericarditis. According to European Society of Cardiology guidelines, all patients with suspected acute pericarditis should have transthoracic echocardiography. The treatment would be a non-steroidal anti-inflammatory drug with or without colchicine. Antimicrobials or steroids may also be added depending on suspected aetiology.

Chest X-ray may show a pericardial effusion if large, but echocardiography is the definitive investigation.

There is no suspicion of pulmonary embolism as the relevant Wells' score is zero. D-dimer would probably be raised anyway due to inflammation.

A repeat full blood count would not provide new information. It is commonly believed that no further investigations are needed for suspected acute pericarditis. This is no longer true according to the guideline mentioned above.

Question:

You are reviewing a 65-year-old lady who takes 10 mg of amlodipine and 2.5 mg of ramipril for hypertension. Her clinic blood pressure (BP) today is 139/87 mmHg.

What should you suggest regarding her medications?

A.Increase her ramipril to 5mg, aiming for a clinic BP <135/85 mmHg

B.Increase her amlodipine to 12.5mg aiming for a clinic BP <135/85 mmHg

C.Start a thiazide-like diuretic aiming for a clinic BP <135/85 mmHg

D.Offer ambulatory BP monitoring before altering her medications

E.Make no changes to her medications, aim for a clinic BP <140/90 mmHg

Answer:Make no changes to her medications, aim for a clinic BP <140/90 mmHg

Explanation:

Blood pressure target (< 80 years, clinic reading) - 140/90 mmHg

Important for meLess important

For a patient under 80 years with treated hypertension, we should aim for a target clinic blood pressure below 140/90 mmHg.

Therefore, this patient's hypertension is well controlled and we should not change her medications.

If her BP was >140/90 mmHg you could increase her ramipril to 5mg, before starting a third agent. The amlodipine is already at the maximum dose.

Question:

A 42-year-old woman presented with irregular menstrual periods and an abnormal infrequent milky discharge from her breasts. She was being investigated in the endocrine clinic for these symptoms. Subsequently, she underwent a magnetic resonance imaging (MRI) scan of her pituitary which showed a dynamic contrast-enhancing 10 x 13 x 8 mm mass in the left side of the pituitary gland with no oedema or mass effect.

Her relevant blood test results were:

Calcium 2.5 mmol/L (2.1-2.6)

Prolactin 2345 ng/mL (2-20)

Thyroid-stimulating hormone (TSH) 3 mU/L (0.5-5.5)

Free thyroxine (T4) 15 pmol/L (9.0 - 18)

What would be the most appropriate initial management in this case?

A.Cabergoline

B.Dexamethasone

C.Domperidone

D.Octreotide

E.Pegvisomant

Answer:Cabergoline

Explanation:

Prolactin release is persistently inhibited by dopamine

Important for meLess important

This patient presents with a prolactinoma and therefore cabergoline is the correct answer. It works by stimulating dopamine receptors in the brain and also inhibits the release of prolactin by the pituitary gland. Dopamine agonists are therefore the first-line medical treatment for prolactinomas.

Dexamethasone is not routinely used in the treatment of prolactinomas. It is commonly employed to help diagnose Cushing's syndrome or disease through overnight or high-dose dexamethasone suppression testing.

Domperidone is a D2-dopamine receptor antagonist and therefore would potentially cause a rise in prolactin levels and worsen symptoms, meaning it would be contraindicated in this case.

Octreotide is a synthetic form of the natural hormone somatostatin. Its use is primarily in the treatment of carcinoid syndrome to control the growth of advanced neuroendocrine tumours for instances where surgery is not possible. Therefore, it would not be suitable in this case.

Pegvisomant is a growth hormone receptor antagonist used in the treatment of acromegaly. It is mainly used if the pituitary gland tumour causing acromegaly cannot be controlled with surgery or radiation, or if the use of somatostatin analogues is ineffective. It has no role in prolactinomas.

Question:

A 58-year-old female presents with a 3 month history of dry eyes, dry mouth, arthralgia and fatigue. On examination there is evidence of conjunctival injection, decreased salivary pool, dry mucous membranes and oral ulceration. She has a positive Schirmer's test.

What is the most appropriate test from the options below?

A.Anti-CCP (cyclic citrullinated peptide) antibody

B.ANCA (anti-neutrophil cytoplasmic antibody

C.Anti-Jo1

D.Anti-Ro / Anti-La antibodies

E.Anti-dsDNA antibody

Answer:Anti-Ro / Anti-La antibodies

Explanation:

The clinical features and and positive Schirmer's test are suggestive of Sjögren's syndrome. Positive anti-Ro and anti-La antibodies can assist in making the diagnosis.

Question:

A 72-year-old man who was admitted yesterday with a urinary tract infection, for which he is now being treated with antibiotics, is found to have the following values on liver function tests (LFTs) taken at admission:

Bilirubin 29 µmol/L (3 - 17)

ALP 183 u/L (30 - 100)

ALT 38 u/L (3 - 40)

γGT 87 u/L (8 - 60)

Albumin 35 g/L (35 - 50)

He is not visibly jaundiced and denies any pain currently. However, he appears quite thin and, on further questioning, estimates that he has lost about 5kg in weight over the last 3 months. He also reports that he occasionally has a mild generalised itch, though it is not troubling him at present.

Examination is unremarkable.

His past medical history includes type 2 diabetes mellitus and hypertension. He has a 40-year pack history of smoking and admits to drinking approximately 20 units of alcohol per week.

Which of the following is the most likely cause of this man's LFT derangement?

A.Alcoholic hepatitis

B.Cholangitis

C.Pancreatic cancer

D.Hepatocellular carcinoma

E.Cirrhosis

Answer:Pancreatic cancer

Explanation:

Pancreatic cancer may present with cholestatic LFTs

Important for meLess important

Pancreatic cancer is the most likely diagnosis of the options given here. It typically presents with non-specific symptoms such as weight loss and is known to cause an obstructive pattern on LFTs. This man also has several risk factors including advanced age, smoking history and diabetes.

Cholangitis will likely cause a cholestatic pattern on LFTs but typically presents with severe right upper quadrant pain and tenderness. Other features include jaundice and fever.

Cirrhosis of the liver is a histological diagnosis that represents an irreversible change to the liver parenchyma, such that it becomes fibrotic, nodular and scarred. It is the final common pathway for many forms of liver disease.

Alcoholic hepatitis and hepatocellular carcinoma may both cause LFT derangement but not typically a purely cholestatic pattern, as seen here.

Question:

A 73-year-old comes to see you asking if she can stop her alendronic acid.

She has been taking it for six years having had a distal radial fracture at this time, after she tripped over on an uneven kerb. There have been no further fractures, nor any preceding this injury. Six years ago, her DEXA scan showed a T-score of -2.4. Her past medical history is otherwise unremarkable and she has no recent history of falls. She has never smoked.

What is the appropriate action to discuss with the patient?

A.Stop the bisphosphonate for one year and then re-introduce it at the same dose

B.Switch bisphosphonate to once yearly preparation (zoledronate) for convenience in this age group

C.Continue bisphosphonate given history of fragility fracture

D.Stop the bisphosphonate for three years and repeat a DEXA scan at this point to decide on further treatment

E.Repeat DEXA scan and FRAX score now and stop the bisphosphonate if low risk, T score is now >-2.5, and review in two years

Answer:Repeat DEXA scan and FRAX score now and stop the bisphosphonate if low risk, T score is now >-2.5, and review in two years

Explanation:

Bisphosphonate 'holidays' is a recent hot topic, addressed by recent evidence from the National Osteoporosis Guideline Group (NOGG) in January 2016.

After a five year period for oral bisphosphonates (three years for IV zoledronate), treatment should be re-assessed for ongoing treatment, with an updated FRAX score and DEXA scan.

This guidance separates patients into high and low risk groups. To fall into the high risk group, one of the following must be true:

Age >75

Glucocorticoid therapy

Previous hip/vertebral fractures

Further fractures on treatment

High risk on FRAX scoring

T score <-2.5 after treatment

If any of the high risk criteria apply, treatment should be continued indefinitely, or until the criteria no longer apply. If they are in the low risk group however, treatment may be discontinued and re-assessed after two years, or if a further fracture occurs.

In the case of this patient, she has no risk factors which put her into the high risk group, but we do not have a recent DEXA scan. The best option would therefore be to re-scan her now, and consider a two year break if her T score is >-2.5

Question:

A 76-year-old man presented with dyspnoea, mild haemoptysis, decreased appetite and his clothing looks loose.

His past medical history includes atrial fibrillation, ischaemic heart disease, hypertension. He used to work as a heating engineer fixing boilers and is a smoker.

His chest x-ray shows blunting of the left costophrenic angle and part of the management plan is to insert a chest drain for his pleural effusion.

Which is the most important blood result to find out before insertion?

A.Adjusted calcium

B.INR

C.Platelet count

D.White cell count

E.CA 19-9

Answer:INR

Explanation:

An INR >1.3 is a relative contraindication for chest drain insertion

Important for meLess important

The history of dyspnoea with haemoptysis and weight loss suggests the most likely diagnosis is malignancy. Given the history of fixing boilers and the unilateral pleural effusion, a very likely diagnosis is mesothelioma.

Hypercalcaemia is not common in mesothelioma and is more related to other malignancies such as renal cell carcinoma and non-small cell lung cancer. It would not be particularly beneficial in this case.

INR is very important particularly in this case as the patient has AF and may be on warfarin. Before inserting any type of drain, ascitic or chest it is essential to check the INR as if this is raised it will significantly increase the risk of bleeding and increase the risk of complications. An INR >1.3 is a relative contraindication for chest drain insertion due to this increased risk.

Platelet count is also an indicator for clotting or bleeding risk however is not as useful as an INR, as platelets can be increased by inflammatory causes such as infection and malignancy and is not as specific as INR in establishing a patients ability to clot.

The white cell count would be useful to illicit whether there is an infection present however again this can be raised in infection or malignancy so can not help you determine the cause for the effusion and therefore is not the most important blood test in this scenario.

CA 19-9 is a tumour marker for pancreatic cancer and therefore would unlikely be helpful in this scenario as this is not the typical presentation for pancreatic cancer.

Question:

The patient below is being treated for epilepsy:

© Image used on license from DermNet NZ and with the kind permission of Prof Raimo Suhonen

What is the most likely underlying diagnosis?

A.HIV

B.Neurofibromatosis

C.Arteriovenous malformation

D.Tuberous sclerosis

E.Lennox-Gastaut syndrome

Answer:Tuberous sclerosis

Explanation:

Tuberous sclerosis - adenoma sebaceum

Important for meLess important

These skin lesions represent adenoma sebaceum.

Question:

A 45-year-old man presents to his GP. He has had a series of blood tests as part of a private medical screening test that have demonstrated abnormal liver functions tests. He is fit and well, asymptomatic and drinks around 40 units of alcohol per week.

Bilirubin 21 µmol/l

ALP 100 u/l

ALT 67 u/l

γGT 110 u/l

Albumin 40 g/l

Other bloods, including FBC, U&Es and fasting glucose were normal. You arrange a liver screen, results of which include:

Hepatitis B Negative

Hepatitis C Negative

Serum ferritin 550 microg/L (25-300 microg/L)

Immunoglobulins Normal

Ultrasound liver Fatty changes

Transferrin saturation 41% (<50%)

What is the most underlying likely cause of the elevated ferritin?

A.Primary polycythaemia

B.Hereditary haemochromatosis

C.Excessive exercise

D.Alcohol excess

E.Carbon monoxide poisoning

Answer:Alcohol excess

Explanation:

The normal transferrin saturation effectively excludes iron overload as a cause of the raised ferritin. It is therefore likely that this is caused by his alcohol excess.

Question:

A 65-year-old man attends an abdominal aortic aneurysm (AAA) screening offered by his GP. On ultrasound, it is revealed that he has a supra-renal aneurysm that is 4.9 cm in diameter. When questioned he says he has no symptoms.

How should this patient be managed?

A.12-monthly ultrasound assessment

B.3-monthly ultrasound assessment

C.6-monthly ultrasound assessment

D.Referral to stop smoking services

E.Urgent referral to vascular surgery

Answer:3-monthly ultrasound assessment

Explanation:

AAA screening: 4.5-5.4cm is a medium aneurysm and requires 3-monthly ultrasound assessment

Important for meLess important

3-monthly ultrasound assessment is currently recommended for medium aneurysms (4.5-5.4cm). These aneurysms have a higher chance of rupture, and so should be monitored on a 3-monthly basis to make sure that there is no rapid diameter increase.

12-monthly ultrasound assessment should be considered for small AAAs (<4.5cm). These aneurysms have a low risk of rupture, and so should be monitored infrequently to make sure there is no growth.

6-monthly ultrasound assessment is not currently used to monitor AAA.

Referral to stop-smoking services should be considered for any patients found to have a AAA who are still smoking. Smoking is one of the main risk factors for both the development and rupture of an AAA. This does not address the need for regular screening, however, and there is also no mention of smoking in this patient's history.

Urgent surgical referral to vascular surgery should be considered for any patient with a large aneurysm (>5.4cm) or a rapidly enlarging aneurysm. These aneurysms have a very high chance of rupture, and so should be referred urgently for endovascular or open repair.

Question:

A 59-year-old man with ischaemic heart disease experiences chest pain whilst walking up a hill. He uses his sublingual glyceryl trinitrate (GTN) spray. Which one of the following side-effect profiles best describes the likely consequences of taking the GTN spray?

A.Hypotension + tachycardia + dyspnoea

B.Hypotension + bradycardia + 'clouding' of vision

C.Hypertension + bradycardia + headache

D.Hypotension + dyspnoea + headache

E.Hypotension + tachycardia + headache

Answer:Hypotension + tachycardia + headache

Explanation:

Question:

A newborn female baby is noted to have a clicky left hip during the routine newborn examination. What is the most appropriate investigation?

A.X-ray

B.Urine dipstick

C.Ultrasound

D.Serum bone profile

E.MRI

Answer:Ultrasound

Explanation:

Question:

A 27-year-old woman presents for a health check before going on a scuba diving holiday. She has brought a urine sample with her. You perform urinalysis which gives the following results:

Protein negative

Leukocytes negative

Nitrites negative

Blood +

Glucose negative

What is the most likely explanation for these results?

A.Menstruation

B.Nephritic syndrome

C.Nephrotic syndrome

D.Renal colic

E.Urinary tract infection

Answer:Menstruation

Explanation:

Microscopic haematuria can be a normal finding in women who are menstruating

Important for meLess important

Nephritic and nephrotic syndrome both require the presence of protein in the urine.

Renal colic is unlikely due to the absence of pain.

Urinary tract infection is unlikely due to the absence of nitrites or leukocytes.

Question:

A 26-year-old male university student presents to the emergency department with polyuria and excessive thirst. He has a background medical history of depression and he has been recently started on a serotonin selective reuptake inhibitor (SSRI). On examination, you note he has a dishevelled appearance, pressured speech, flight of ideas and boundless energy. A collateral history from the patient's sister reveals that he has not slept for 3 days, he has been binge drinking more than 20 units of alcohol at a time, and he has been taking MDMA (Ecstasy). He appears hypovolemic. He is apyretic, has normal tone and reflexes, and no evidence of clonus or tremor.

Further investigations reveal:

Na+ 154 mmol/L (135 - 145)

Serum osmolality 362 mOsm/kg (275 - 300)

Urinary sodium 26 mEq/L

Urine osmolality 200 mOsm/kg (500 - 850)

What is the most likely cause for this patient’s hypernatremia?

A.Binge drinking alcohol

B.Diabetes mellitus

C.MDMA (Ecstasy) abuse

D.Primary polydipsia

E.Syndrome of inappropriate antidiuretic hormone secretion (SIADH) secondary to SSRI

Answer:Binge drinking alcohol

Explanation:

Alcohol bingeing can lead to ADH suppression in the posterior pituitary gland subsequently leading to polyuria

Important for meLess important

Binge drinking alcohol is the correct answer. This patient is having a manic episode likely due to the recent introduction of an SSRI. He has not been sleeping, he has been binge drinking alcohol and taking MDMA (Ecstasy). Alcohol bingeing can lead to ADH suppression in the posterior pituitary gland subsequently leading to polyuria. This is similar to cranial diabetes insipidus or partial cranial diabetes insipidus and typically causes hypernatremia with a raised serum osmolality and decreased urine osmolality as is seen in this case.

Diabetes mellitus is an incorrect answer. Diabetes mellitus can cause polyuria. However, it does not cause an inability to concentrate urine, as is seen in this case.

MDMA (Ecstasy) abuse is an incorrect answer. MDMA (Ecstasy) abuse can cause SIADH and the phenomenon is well described in adults. However, SIADH causes hyponatremia with low serum osmolality and concentrated urine (urinary sodium >30 mEq/L). This is inconsistent with the clinical scenario above. Furthermore, this patient does not have serotonin syndrome as he is apyretic, has normal tone and reflexes, and no evidence of clonus or tremor. In any case, serotonin syndrome is not typically associated with hypernatremia.

Primary polydipsia is an incorrect answer. Primary polydipsia is characterised by a large consumption of water per day. It is associated with a normal or low serum sodium (<135 mmol/L) level and a normal or low serum osmolality (≤280 mOsm/kg). Hypernatremia is inconsistent with primary polydipsia.

Syndrome of inappropriate antidiuretic hormone secretion (SIADH) secondary to SSRI is an incorrect answer. SIADH causes hyponatremia with low serum osmolality and concentrated urine (urinary sodium >40 mEq/L). This is certainly inconsistent with the clinical scenario above. Furthermore, this patient does not have serotonin syndrome as is outlined in the explanation for MDMA (Ecstasy) abuse above.

Question:

Precocious puberty in males may be defined as the development of secondary sexual characteristics before:

A.8 years of age

B.9 years of age

C.10 years of age

D.11 years of age

E.12 years of age

Answer:9 years of age

Explanation:

Question:

You are working in the memory clinic and your next patient is an 85-year-old man who is accompanied by his wife.

You take a collateral history from the patient's wife which reveals that he has been becoming gradually more confused and forgetful over the past year. However, she mentions he can recall past events vividly. Last week, she states she found him wandering the streets only 2 minutes from his house, having forgotten where he was.

His wife denies any sudden decline in his cognition or behaviour. She also denies any evidence of hallucinations.

Given the most likely diagnosis, what part of the brain is affected?

A.Basal ganglia and substantia nigra

B.Cerebellum and hippocampus

C.Cortex and hippocampus

D.Cortex and substantia nigra

E.Frontal and temporal lobe

Answer:Cortex and hippocampus

Explanation:

Alzheimer's disease causes widespread cerebral atrophy mainly involving the cortex and hippocampus

Important for meLess important

Cortex and hippocampus are correct. This patient is presenting with a likely diagnosis of Alzheimer's disease. This is evidenced by the gradually worsening memory loss and decline in cognitive ability. The patient can accurately remember events from the past. He has not had any stepwise declines in his ability (which could indicate vascular dementia) or any hallucinations (which could indicate Lewy body dementia). This leaves the most likely diagnosis as Alzheimer's disease. In Alzheimer's disease, there is widespread cerebral atrophy. The main areas affected in Alzheimer's disease are the cortex and hippocampus. Therefore, this is the correct answer.

Basal ganglia and substantia nigra is incorrect. The basal ganglia and substantia nigra are affected in Parkinson's disease. This patient is not showing core symptoms of Parkinson's disease and so this diagnosis is not the most likely for this patient.

Cerebellum and hippocampus is incorrect. Whilst the hippocampus is affected in Alzheimer's disease, the cerebellum is not. The cerebellum is responsible for balance and posture and is affected, for example, by alcohol. This patient is not showing any issues with his balance or posture and therefore this answer is incorrect.

Cortex and substantia nigra is incorrect. Whilst the cortex is affected in Alzheimer's disease, the substantia nigra is not. As mentioned above, the substantia nigra is the structure affected in Parkinson's disease - of which this patient is displaying no symptoms, making this answer incorrect.

Frontal and temporal lobe is incorrect. The frontal and temporal lobes are the structures that are primarily affected in frontotemporal dementia. Whilst this patient is displaying symptoms of dementia, he is not showing key signs of frontotemporal dementia i.e., behaviour/personality changes. Therefore, this answer is incorrect.

Question:

A 44-year-old patient presents to the emergency department with sudden onset difficulty swallowing and facial spasms. He said this started 4-hours previously and has not resolved since. The patient is a known intravenous drug user.

On examination, the patient has a temperature of 38.2ºC, a heart rate of 98bpm, a respiratory rate of 16 breaths/min, and oxygen saturation are 97% on air. On reviewing this patient, a brief facial spasm occurs, lasting approximately 2 minutes, before completely self-resolving.

What is the most likely diagnosis?

A.Clostridium botulinum infection

B.Clostridium tetani infection

C.Giardia lamblia infection

D.Pneumocystis jiroveci infection

E.Staphylococcus aureus infection

Answer:Clostridium tetani infection

Explanation:

Fever, facial spasms, dysphagia in an intravenous drug user → ?tetanus (botulism would cause a flacid paralysis)

Important for meLess important

Clostridium tetani infection is correct. This patient is an intravenous drug user (IVDU) presenting with a fever, facial spasms, and dysphagia. This is indicative of a diagnosis of tetanus. The patient has a risk factor for exposure to Clostridium tetani as he is an IVDU and so could be using contaminated needles. The symptoms are in keeping with tetanus infection.

Clostridium botulinum infection is incorrect. IVDUs are at increased risk of being infected with Clostridium botulinum. However, infection with Clostridium botulinum would present with flaccid paralysis rather than spastic paralysis as seen in this patient.

Giardia lamblia infection is incorrect. Giardia lamblia is an infectious disease often transmitted by swimming or drinking water from an infected lake. This patient has no risk factors for Giardia lamblia infection and also no symptoms. Giardia lamblia infection is usually asymptomatic. However, patients with Giardia lamblia infection can present with non-bloody diarrhoea and abdominal pain. This patient has none of these symptoms and so this option is incorrect.

Pneumocystis jiroveci infection is incorrect. Pneumocystis jiroveci infection is a common cause of pneumonia in patients who are HIV positive. This patient is not presenting with symptoms of pneumonia such as a cough or breathlessness.

Staphylococcus aureus infection is incorrect. Staphylococcus aureus infection is commonly seen in IVDUs. However, it would normally be seen as a cause of infective endocarditis or cellulitis. This patient is not presenting with symptoms of either of these conditions and so, therefore, this option is incorrect.

Question:

A 64-year-old woman presents with a painful right eye which came on this evening. On examination, she is notably photophobic with a non-reactive oval pupil. Her visual acuity is 6/6 in both eyes. Her past medical history includes urinary incontinence for which she takes solifenacin.

What is the most likely diagnosis?

A.Acute angle closure glaucoma

B.Anterior uveitis

C.Endophthalmitis

D.Posterior uveitis

E.Scleritis

Answer:Anterior uveitis

Explanation:

Red eye - glaucoma or uveitis?

glaucoma: severe pain, haloes, 'semi-dilated' pupil

uveitis: small, fixed oval pupil, ciliary flush

Important for meLess important

Anterior uveitis is correct. This is a classical description of anterior uveitis which presents with an acutely painful red eye. A non-reactive oval pupil and ciliary flush are key features of this condition.

Acute angle closure glaucoma is incorrect. Acute angle closure glaucoma (AACG) can also present with an acutely painful red eye, however, the pupil would be semi-dilated in this condition. Although the patient is on an anti-muscarinic (solifenacin) which can precipitate AACG, the clinical features are more in keeping with anterior uveitis.

Endophthalmitis is incorrect. Endophthalmitis typically presents with a red eye, pain and visual loss following intraocular surgery. The preserved visual acuity and absence of any recent ocular surgery makes this an unlikely diagnosis.

Posterior uveitis is incorrect. Posterior uveitis is the inflammation of the back of the eye. This primarily affects the retina, which includes the retinal vessels, or the choroid. Posterior uveitis is known to cause vision loss and may include symptoms of flashing lights or floaters. The absence of visual loss, flashers and floaters, makes this an unlikely diagnosis.

Scleritis is incorrect. Scleritis presents with a characteristic violet-bluish hue with scleral oedema and dilatation. Other signs vary depending on the location of the scleritis and the degree of involvement. In the anterior segment, there may be associated keratitis with corneal infiltrates or thinning, uveitis, and trabeculitis.

Question:

A 45-year-old man in a heterosexual relationship attends a counselling session with regards to a vasectomy. He enquires about forms of contraception after the procedure.

What is the most appropriate advice to give him?

A.Abstain from sexual intercourse until semen analysis reveals azoospermia

B.No need for additional contraception as a vasectomy is effective immediately

C.The patient’s partner should use hormonal contraception

D.Use additional contraception until semen analysis reveals azoospermia

E.Use additional contraception until vasectomy becomes effective at 16 weeks

Answer:Use additional contraception until semen analysis reveals azoospermia

Explanation:

Vasectomy isn't an immediate form of contraception; semen analysis must be performed and azoospermia confirmed before used as contraception

Important for meLess important

The most appropriate advice to give him is to use additional contraception until a semen analysis that needs to be performed twice after the procedure confirms azoospermia.

While advising to abstain from sexual intercourse until semen analysis reveals azoospermia is a safe option, it is not a practical option as it hinders the patient’s sexual life when the patient can use additional contraception for safety.

Advising that there is no need for additional contraception because a vasectomy is effective immediately is incorrect as a vasectomy does not work immediately.

Advising the patient that his partner should use hormonal contraception is incorrect as the partner is not necessarily your patient and advice should be given directly to your patient.

Advising to use additional contraception until vasectomy becomes effective at 16 weeks is incorrect as there is no defined timeframe for when vasectomy becomes effective. About 12 weeks after the procedure, the patient will need to produce a sample for analysis and only when tests have confirmed azoospermia, the patient can stop using additional contraception. This is usually around 16 and 20 weeks.

Question:

A 39-year-old endurance athlete presents to her GP with a 2-month history of macroscopic haematuria and mild dysuria. She has also developed dyspareunia and, on occasion, has had some post-coital bleeding.

She recalls developing a pruritic maculopapular rash on her left foot 4 months ago during a kayaking expedition in Sudan however, this quickly healed.

Blood tests show eosinophilia and moderate anaemia. Her GP suspects she may have a parasitic infection of her urogenital system.

What would be the gold standard investigation for diagnosing the cause of her haematuria?

A.Blood film

B.CT kidneys/ureter/bladder

C.Cystoscopy

D.Diagnostic laparoscopy

E.Stool and urine microscopy

Answer:Stool and urine microscopy

Explanation:

For symptomatic schistosomiasis patients the gold standard for diagnosis is urine or stool microscopy looking for eggs

Important for meLess important

Stool and urine microscopy is the correct answer here. This patient has urogenital schistosomiasis caused by an infection by the Schistosoma haematobium parasite (a species of digenetic trematode). The parasite enters the body by penetrating through the skin, often causing a local skin hypersensitivity reaction similar to the small, itchy maculopapular lesions described in this patient. Unlike other forms of Schistosoma spp. which release eggs in the intestine, Schistosoma haematobium flukes migrate to the venous plexus of the bladder and eggs are secreted in the urine. This results in the classic urogenital symptoms. The diagnosis of schistosomiasis is established by the presence of terminal spined eggs in the urine or stool, making this the gold standard for investigation.

Blood film is not useful for diagnosis of schistosomiasis. Given the area to which she has travelled, malaria is an important differential to consider as it may cause haematuria in the case of blackwater fever. Blood film would be the diagnostic test for this. However, blackwater fever would be an acute illness with a severely unwell patient so does not fit the clinical picture here and thus blood film is not the gold-standard investigation.

CT kidneys/ureter/bladder may rule out some differentials for haematuria (such as renal stones, renal tumours, etc.) but would not be diagnostic of schistosomiasis.

Cystoscopy is not the gold-standard investigation but may visualise the granulomatous lesions classic in schistosomiasis. Biopsy of these lesions is helpful if urine microscopy is negative but suspicion of infection is still high. Cystoscopy may also be useful if considering possible bladder malignancy - a complication of chronic schistosomiasis - or to rule out other differential diagnoses such as bladder stones.

Diagnostic laparoscopy is not useful for the diagnosis of urogenital schistosomiasis and so would not be appropriate to perform in this patient.

Question:

A woman who is at 12 weeks gestation presents to her antenatal appointment for her combined screening test. She consents to, and undergoes, the standard screening test involving blood tests being taken and an ultrasound scan. She is subsequently informed that her results may indicate Down's syndrome, and is invited to discuss this further.

What results would be expected in this instance?

A.Low beta-human chorionic gonadotrophin (beta-HCG), low pregnancy associated plasma protein-A (PAPP-A) , ultrasound demonstrates thickened nuchal translucency

B.Low beta-HCG, raised PAPP-A, ultrasound demonstrates thickened nuchal translucency

C.Raised beta-HCG, low PAPP-A, raised inhibin A

D.Raised beta-HCG, low PAPP-A, ultrasound demonstrates thickened nuchal translucency

E.Raised beta-HCG, low inhibin A, ultrasound demonstrates thickened nuchal translucency

Answer:Raised beta-HCG, low PAPP-A, ultrasound demonstrates thickened nuchal translucency

Explanation:

Down's syndrome is suggested by ↑ HCG, ↓ PAPP-A, thickened nuchal translucency

Important for meLess important

Down's syndrome is suggested by a raised beta-HCG, low PAPP-A, and ultrasound demonstrates thickened nuchal translucency. The other options including beta-HCG and PAPP-A are therefore incorrect. The combined screening test is typically done between 10-14 weeks gestation and this includes an ultrasound to assess nuchal thickness as well as blood tests looking at beta-HCG and PAPP-A. This result suggests an increased risk of Down's syndrome, Patau's syndrome and Edward's syndrome. Following this result, an amniocentesis, chorionic villus sampling or non-invasive prenatal test would be offered in this case to confirm the diagnosis.

The options which involve inhibin A are incorrect. Inhibin A is not part of the combined screening. If a woman presents later in pregnancy, such as from 14 weeks onwards then the combined screening test for Down's syndrome is not accurate. Therefore the quadruple test could be used instead, which consists of 4 blood markers which determine the risk of Down's syndrome. These markers include inhibin A, alpha-fetoprotein, unconjugated oestriol and beta-HCG. Typically a quadruple test result demonstrating Down's syndrome would be raised beta-HCG and inhibin A, and low unconjugated oestriol and alpha-fetoprotein.

Question:

An 8-year-old boy attends a general practice appointment with his mother with a 1-month history of right-sided hip pain and occasional limp. The patient feels well, is afebrile, and measures in the 90th percentile for weight.

He was born by spontaneous vertex vaginal delivery at term, with an unremarkable newborn physical examination.

On examination, there is a limited range of movement in his right hip.

A frog-leg hip x-ray is requested, showing sclerosis of the right upper femoral epiphysis and moderate of resorption of the femoral head.

Which of the following statements is most accurate regarding the likely diagnosis?

A.30% of cases are bilateral

B.The condition is 5 times more common in boys

C.The condition is associated with obesity

D.The condition may be managed with a Pavlik harness

E.The condition’s peak incidence is in children aged over 12

Answer:The condition is 5 times more common in boys

Explanation:

Perthes' disease is around 5 times more common in boys

Important for meLess important

This patient has many features of Perthes' disease. Perthes' disease is an idiopathic avascular necrosis of the femoral head in children. It classically presents in a 4-8-year-old boy with an irritable hip, limp, and reduced range of motion, despite no history of trauma or systemic symptoms. X-ray imaging may demonstrate epiphyseal sclerosis, or in severe cases resorption of the femoral head.

The correct answer is the condition is 5 times more common in boys. Perthes shows significant male predominance, with most patients between the ages of 4-8. Risk factors include.

30% of cases are bilateral is incorrect, as only 10% of patients with Perthes disease have bilateral disease. The majority of patients with Perthes disease have only unilateral disease.

The condition is associated with obesity is incorrect, as obesity is not a risk factor for Perthes disease. Slipped capital femoral epiphysis is another cause of irritable hip in older children, with a close association with obesity.

The condition may be managed with a Pavlik harness is incorrect, as this is the management of developmental dysplasia of the hip rather than Perthes disease. Perthes disease is managed conservatively with a cast or brace in most instances. Older children or children with severe acetabular destruction may require surgical management.

The condition’s peak incidence is in children aged over 12 is incorrect, as the peak incidence of Perthes disease is between the ages of 4 and 8. While rare in older children, the condition is more likely to require surgical management.

Question:

You are examining the back of a 74-year-old man and notice the following:

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What is the most likely diagnosis?

A.Bowen's disease

B.Multiple benign moles

C.Metastatic malignant melanoma

D.Seborrhoeic keratoses

E.Dysplastic naevus syndrome

Answer:Seborrhoeic keratoses

Explanation:

This man has multiple seborrhoeic keratoses, also known as basal cell papillomas.

Question:

A 50 year-old man with dialysis dependent chronic kidney disease is awaiting renal transplant. He complains of fatigue. On examination you note heart rate 95 beats per minute, soft ejection systolic murmur that doesn't radiate and pallor. There were no other abnormal features.

What is the most likely cause of his fatigue?

A.Heart failure

B.Endocarditis

C.Uraemic encephalopathy

D.Anaemia

E.Hyperkalaemia

Answer:Anaemia

Explanation:

Anaemia is extremely common in chronic kidney disease. It is often caused by iron deficiency or erythropoietin deficiency. The man in this case has a few signs and symptoms of anaemia - tachycardia, fatigue, pallor and an aortic flow murmur.

Question:

A 55-year-old man presents to the GP due to problems with his balance. He has found himself falling and being more clumsy over the last 3 months. On examination, his gait is abnormal and he places his feet widely apart and is unable to steady himself. He is unable to walk in a heel-to-toe pattern.

What is the name of his abnormal examination finding?

A.Antalgic gait

B.Ataxic gait

C.High stepping gait

D.Trendelenburg gait

E.Waddling gait

Answer:Ataxic gait

Explanation:

A wide-based gait with loss of heel to toe walking is called an ataxic gait

Important for meLess important

Ataxic gait is correct. The patient has a wide-based gait and is unable to coordinate his lower limbs to walk in a heel-to-toe fashion. This presentation is known as an ataxic gait and typically occurs following cerebellar injury. The mnemonic 'PASTRIES' can help with remembering the causes of cerebellar disease - posterior fossa tumour, alcohol, multiple sclerosis, trauma, rarer causes, inherited, epilepsy treatment, and stroke.

Antalgic gait is incorrect. This is limping caused by pain that is worse when weight-bearing on the affected limb. There is no mention of a reluctance or inability to weight bear on either limb.

High stepping gait is incorrect. This occurs in patients that have foot drop (due to a common peroneal nerve injury). This presents with the patient lifting the affected leg up higher to prevent their foot from dragging across the floor as they walk.

Trendelenburg gait is incorrect. In a Trendelenburg gait, the pelvis drops to the contralateral side causing the trunk to shift while walking and is often due to congenital hip problems, hip fractures, and gluteus medius muscle weakness.

Waddling gait is incorrect. This is due to weakness in the pelvic girdle and thigh muscles and is characterised by the patient circumducting their leg when walking to compensate for the weakness. It is often due to pregnancy, muscular dystrophies and congenital hip problems.

Question:

Tina is a 30-year-old woman who has recently given birth to a baby girl 6 weeks ago. At the 6 week check, you can see from her records that she has previously been on citalopram for moderate depression, however, this was stopped before her pregnancy. She tells you that she is finding it difficult to cope and is feeling extremely low. On examination, she is tearful and has a flat affect. She denies any thoughts to harm herself or her baby but is keen to try a medication that would be safe to use with breastfeeding.

Which of the following medications may be appropriate for her to start?

A.Amitriptyline

B.Citalopram

C.Paroxetine

D.She is unable to take any medications as she is breast feeding

E.St Johns Wort

Answer:Paroxetine

Explanation:

Sertraline or paroxetine are the SSRIs of choice in breastfeeding women

Important for meLess important

This patient has post-natal depression. She is not at risk to herself or her baby and therefore does not need any urgent intervention. Prior to starting treatment in post-natal depression, NICE guidelines advise that we seek advice from a specialist perinatal mental health team. According to NICE guidelines, the first-line choice in a woman who is breastfeeding is paroxetine or sertraline. The infant still needs to be monitored for sedation, poor feeding and behavioural effects. Therefore paroxetine is the correct answer.

Although amitriptyline is a tricyclic antidepressant, the guidelines say that tricyclic antidepressants are less commonly used than SSRIs for postnatal depression because of concerns about maternal toxicity.

The guidelines advise the use of paroxetine or sertraline rather than citalopram. Therefore, although it is an SSRI similar to the others, citalopram is incorrect. In this case, it would be best to stick to guideline recommendations given the potentially serious outcomes for the mother and her child in the case of uncontrolled post-natal depression in a breastfeeding woman.

It is not true that she is unable to take medications due to breastfeeding. The guidelines suggest that paroxetine and sertraline are the SSRIs of choice in breastfeeding women. It is important to optimise control of her mood symptoms to reduce the risk to her and her newborn child.

There is not much information available about the safety of St Johns Wort in the treatment of post-natal depression and breastfeeding. It is a complementary medicine treatment that could be recommended in milder cases of depression in other populations.

Question:

A 76-year-old man, ex-smoker with a 24 pack-years of smoking history, presents to the accident and emergency department with sudden onset chest pain. He reports that the chest pain began in the morning, as a central chest pain which later on radiated to his back. The man lives alone, has a history of hypertension and drinks 20 units of alcohol weekly. Upon examination, the man is afebrile, has a respiratory rate of 28 breaths per min, heart rate of 130 beats per minute and blood pressure of 88/65 mmHg. What is the next best step in the management of this patient?

A.Immediate blood transfusion

B.Establish IV access and begin fluid resuscitation

C.Request a chest X-ray

D.Request for high resolution CT

E.Emergency referral to be seen by a vascular surgeon

Answer:Establish IV access and begin fluid resuscitation

Explanation:

This patient's history suggests an aortic dissection as the most likely diagnosis. Although blood transfusion will be necessary if there is significant blood loss, this will likely delay the process of resuscitation as it will require blood cross-matching. A chest X-ray and high-resolution CT are unlikely to provide relevant information for the management of this patient. Although an aortic dissection would be an indication for a surgical referral (if type A) or conservative management (if type B), the most important immediate management of this patient's condition necessitate fluid resuscitation for shock (most likely haemorrhagic) as this would most likely be the cause of death in this patient if not addressed immediately.

Question:

A 7-year-old boy presents to hospital with a suspected fracture of his right humerus. His parents do not know how this occurred and deny any injury. On examination, you notice widespread dental caries, a blueish tinge to the sclera and on X-ray, multiple fractures at varying stages of healing are reported.

What is the most likely diagnosis in this case?

A.Childhood neglect

B.Rickets

C.Non-accidental injury

D.Osteogenesis imperfecta

E.Osteopetrosis

Answer:Osteogenesis imperfecta

Explanation:

Blue sclera is associated with osteogenesis imperfecta

Important for meLess important

Osteogenesis imperfecta is a collagen disorder characterised by multiple fractures in childhood, dental caries and deafness (as a result of otosclerosis). Although sadly commonly misconstrued as childhood neglect or abuse, the presence of blue sclera is key, as this is virtually pathognomonic for osteogenesis imperfecta.

Rickets would most likely present with deformity and stunted growth, as oppose to multiple fractures.

Osteopetrosis is an important differential, but would not present with blue sclera.

Question:

A 75-year-old woman presents with pain and stiffness in her shoulder and pelvic girdle. She says she 'feels weak' and struggles with her activities of daily living. The pain and stiffness are worst in the morning and improve throughout the day, often lasting up to 5 hours after waking.

On examination, there is no objective weakness in any of the limbs, but proximal muscle stiffness and pain are noted. She has a past medical history of depression and hypercholesterolaemia and takes sertraline and atorvastatin.

Given the likely diagnosis, what investigation findings are likely?

A.ESR normal, CRP normal, anti-CCP ↑, CK ↑

B.ESR normal, CRP ↑, anti-CCP normal, CK ↑

C.ESR ↑, CRP ↑, anti-CCP normal, CK increased

D.ESR ↑, CRP ↑, anti-CCP normal, CK normal

E.ESR ↑, CRP ↑, anti-CCP ↑, CK normal

Answer:ESR ↑, CRP ↑, anti-CCP normal, CK normal

Explanation:

Creatine kinase is normal in polymyalgia rheumatica

Important for meLess important

ESR ↑, CRP ↑, anti-CCP normal, CK normal is correct. This patient has signs and symptoms consistent with polymyalgia rheumatica (PMR), characterised by her proximal muscle pain and stiffness that is worse in the morning and improves with activity. Although PMR is not fully understood, the pain and stiffness result from inflammation in the linings of joints, which can lead to increases in ESR and CRP. There are no known autoantibodies associated with PMR, therefore anti-CCP is normal. Since there is no damage occurring to muscles, and no muscular weakness, the creatine kinase (CK) is normal. These are typical findings for a patient with PMR.

ESR ↑, CRP ↑, anti-CCP ↑, CK normal is incorrect. Although ESR and CRP are raised in PMR, and the CK is normal, there are no known autoantibodies associated with PMR, therefore anti-CCP should be normal.

ESR ↑, CRP ↑, anti-CCP normal, CK ↑ is incorrect. Although ESR and CRP are raised in PMR and anti-CCP is normal as there are no known autoantibodies associated with PMR. The CK is normal, not increased, as there is no damage occurring to muscles or any weakness.

ESR normal, CRP ↑, anti-CCP normal, CK ↑ is incorrect. As PMR is an inflammatory condition, it is typical for the ESR and CRP to increase. Anti-CCP is normal as there are no known autoantibodies associated with PMR. The CK is normal, not increased, as there is no damage occurring to muscles or any weakness.

ESR normal, CRP normal, anti-CCP ↑, CK ↑ is incorrect. As PMR is an inflammatory condition, it is typical for the ESR and CRP to increase. Anti-CCP is normal as there are no known autoantibodies associated with PMR. The CK is normal, not increased, as there is no damage occurring to muscles or any weakness.

Question:

A 65-year-old male presents to the GP with recurrent mild upper abdominal pain following a meal. He also complained of foul-smelling greasy stools. He has not experienced any weight loss or change in appetite, no nausea or vomiting, and is not clinically jaundiced. He has a past medical history of chronic alcohol abuse - he drinks 80 units per week and has been doing so for the past 10 years.

What is the most appropriate diagnostic test?

A.Abdominal x-ray

B.CT abdomen

C.Faecal elastase

D.Full blood count

E.MRCP

Answer:CT abdomen

Explanation:

CT pancreas is the preferred diagnostic test for chronic pancreatitis - looking for pancreatic calcification

Important for meLess important

This is a presentation of chronic pancreatitis. Alcohol abuse is the most common cause of chronic pancreatitis. Other causes include haemochromatosis, smoking, hypercalcaemia, cystic fibrosis, chronic kidney disease, and ductal obstruction. The exact pathophysiology is still unclear, but an injury to the pancreas can be caused by inflammation and autodigestion (inappropriate activation of the pancreatic enzymes so they digest the pancreas). Abdominal pain is the most common presentation - it is usually epigastric, can radiate to the back, and is worse after food. Other features include jaundice, steatorrhoea, anorexia, and nausea. Diabetes mellitus can develop if the destruction of the pancreas is extensive.

In terms of investigations, CT is widely accepted as the optimal test and may show enlargement of the pancreas with or without pancreatic calcifications. Other tests that may be used before a CT include an abdominal x-ray and an abdominal ultrasound - however, these are not as sensitive as a CT scan.

A full blood count would help in ruling out an infective cause of pancreatitis.

Magnetic resonance cholangiopancreatography (MRCP) is the investigation of choice for gallstones when the ultrasound is normal. However, the patient would have abnormal liver function tests or dilation of the bile ducts in such a case, neither of which is the case with this patient.

Question:

A 29-year-old man has been brought in by ambulance after falling off his motorbike. He has some facial and scalp lacerations but no obvious external haemorrhage. He appears sleepy and the consultant requests you to assess his Glasgow coma scale (GCS) score. He keeps closing his eyes, and only opens them again when you talk to him. You ask him to tell you if he has any family that he would like you to contact, to which he responds 'Apple, fly, argue'. He has retained full movement of his hands, but when you ask him to touch his index finger to his thumb he does not. When you apply pressure to his nail bed, he has abnormal flexion of his arm.

What is his GCS score?

A.7

B.11

C.8

D.10

E.9

Answer:9

Explanation:

GCS: Motor (6 points) Verbal (5 points) Eye opening (4 points). Can remember as '654...MoVE'

Important for meLess important

This gentleman has a Glasgow coma scale (GCS) score of 9. His motor response is abnormal flexion to pain (3), Verbally he is simply saying random words (3), and his eyes respond to speech (3).

An easy way to remember the components of GCS is 654 MoVE. Motor (6 points) Verbal (5 points) Eye opening (4 points).

Question:

A 21-year-old lady is admitted to hospital from her GP with her mother due to extremely low body mass index (BMI). Her GP notes explain that she has a history of anorexia nervosa. Her mother explains that she hasn't been eating well for the last couple of months and on examination the patient has a BMI of 14.0kg/m² and looks unwell. You are aware that some patients, such as those with eating disorders, are at risk of refeeding syndrome.

Given this patient's history, which of the following electrolyte imbalances would suggest that she is at risk of refeeding syndrome?

A.Hypermagnesaemia

B.Hypophosphataemia

C.Hyperkalaemia

D.Hyperphosphataemia

E.Thiamine overload

Answer:Hypophosphataemia

Explanation:

Hypophosphataemia, hypokalaemia and hypomagnesaemia are the characteristic electrolyte disturbances seen in patients with refeeding syndrome

Important for meLess important

Option 2 - hypophosphataemia is the correct option. This is a commonly recognised biochemical sign of refeeding syndrome.

In anorexia nervosa, the patient has inadequate dietary intake and may make use of other methods to lose weight. With poor intake and increased clearance, these patients can quickly become electrolyte deficient, therefore:

Option 1 is incorrect as refeeding syndrome is associated with hypomagnesaemia.

Option 3 is incorrect as refeeding syndrome is associated with hypokalaemia.

Option 4 is incorrect as refeeding syndrome is associated with hypophosphataemia.

Option 5 is incorrect as refeeding syndrome is associated with thiamine deficiency

Question:

A 16-year-old presents for an asthma review. She demonstrates her inhaler technique and does the following steps when administering her salbutamol:

Removes cap and shakes the puffer.

Breathes out gently.

Puts the mouthpiece in her mouth and presses the canister when she breathes in and inhales deeply.

Holds her breath for 20 seconds.

She then repeats this process immediately for the next administration.

Are there any issues with the technique?

A.Her technique is sound and requires no changes

B.She must wait at least 1 minute before administering her next dose

C.She must hold her breath for 10 seconds after administering the medication

D.She must hold her breath for 30 seconds after administering the medication

E.She must wait at least 30 seconds before administering her next dose

Answer:She must wait at least 30 seconds before administering her next dose

Explanation:

When using an inhaler, for a second dose you should wait for approximately 30 seconds before repeating

Important for meLess important

This patient is demonstrating very good inhaler technique and the only issue identified is the timing for the repeat dose. The steps illustrate that she is using her next dose immediately after the initial dose. Guidelines suggest waiting approximately 30 seconds before repeating the dose.

Although her inhaler technique is very good, she does have areas for improvement as most people using inhalers would. She should be congratulated on her sound technique and given further advice regarding waiting before repeating the dose.

Waiting a minute prior to delivering the next dose is not required when administering a repeat dose. 30 seconds is the suggested amount of time and allows the medication to enter the airways and exert some effect, as well as allowing the patient to return to some normal breathing.

Although it is true the patient should hold their breath for at least 10 seconds after administering the medication, it is not wrong to be holding it for 20 seconds or for as long as the patient is comfortable holding it. Therefore providing this advice would be incorrect.

As previously mentioned, the amount of time required to hold your breath after administering a dose is around 10 seconds or for as long as the patient is comfortable. Therefore it is incorrect to advise the patient to hold her breath for at least 30 seconds after administering the dose.

Question:

A 34-year-old female presents due to a number of 'funny-dos'. She describes a sensation that her surroundings are unreal, 'like a dream'. Following this she has been told that she starts to smack her lips, although she has no recollection of doing this. What is the most likely diagnosis?

A.Myoclonic seizure

B.Focal aware seizure

C.Focal impaired awareness seizure

D.Focal to bilateral seizure

E.Absence seizure

Answer:Focal impaired awareness seizure

Explanation:

With focal aware seizures there is no disturbance of consciousness or awareness. Lip smacking is an example of an automatism - an automatic, repetitive act

Question:

An 86-year-old lady is brought into the emergency department by ambulance. She was found on her kitchen floor late this morning by her neighbour. She fell over last night, and had been unable to get up since then. She is now complaining of generalised aches and pains. She has no past medical history and does not take any regular medications.

On examination, she is cold and appears frail; she has a heart rate of 72/minute, and a blood pressure of 120/80 mmHg. Her urine is also “muddy-looking'.

Blood tests showed the following:

pH 7.29

Bicarbonate 15 mmol/l

Creatine kinase 1559 u/l

Creatinine 301 µmol/l

Potassium 5.7 mmol/l

Routine blood tests a few weeks ago showed:

pH 7.41

Bicarbonate 27 mmol/l

Creatine kinase 99 u/l

Creatinine 61 µmol/l

Potassium 4.2 mmol/l

What is the underlying pathophysiology of this patient’s acute kidney injury (AKI)?

A.Renal artery stenosis

B.Glomerulonephritis

C.Acute tubular necrosis

D.Chronic interstitial nephritis

E.Acute interstitial nephritis

Answer:Acute tubular necrosis

Explanation:

Rhabdomyolysis can cause AKI due to acute tubular necrosis

Important for meLess important

The history is suggestive of an AKI secondary to rhabdomyolysis due to the patient’s long lie, symptoms of generalised aches and pains, and muddy-looking urine (due to myoglobinuria). The metabolic acidosis on the VBG further confirms this. That she had a normal kidney function a few weeks ago, suggests that this is an AKI rather than CKD. Rhabdomyolysis is an important cause of acute tubular necrosis.

Renal artery stenosis (option 1) is unlikely given that she is not hypertensive nor has any atherosclerotic conditions, and does not take any antihypertensives.

Although some causes of glomerulonephritis (e.g. Goodpasture’s disease) (option 2) can cause a rapidly progressive AKI, the patient has not complained of any other symptoms (e.g. haemoptysis) that might suggest this as a cause.

Chronic interstitial nephritis (option 4) is usually characterised by a slow, progressive decline in renal function; whereas this patient has had a rapid deterioration.

Acute interstitial nephritis (option 5) results from inflammation of the interstitium, due to infections, immune reactions (e.g. SLE) or hypersensitivity to drugs (e.g. NSAIDs). The unremarkable past medical and drug history therefore points way from this.

Question:

A 28-year-old woman who is 10 weeks pregnant comes to see you for her booking appointment. She has heard there are some vaccinations offered in pregnancy and wants more information.

Which of the following combinations of vaccinations are routinely offered to pregnant women in the UK?

A.Pertussis and pneumococcus

B.Influenza and rubella

C.Influenza and pneumococcus

D.Influenza and pertussis

E.Pertussis and rubella

Answer:Influenza and pertussis

Explanation:

This is a question about routine immunisations in pregnant women in the UK

The correct answer is influenza and pertussis.

The influenza vaccine is offered to all pregnant women who are pregnant during the flu season, regardless of trimester.

The pertussis (whooping cough) vaccine has been offered to all pregnant women since October 2012. It is ideally given at 28-32 weeks but can be given up to 38 weeks and is repeated in every pregnancy. There is no individual pertussis vaccine therefore it is given in a vaccine alongside polio, diphtheria and tetanus. It was introduced due to an increasing incidence of whooping cough in babies less than 2 months old who were too young to have their pertussis vaccination.

There is no routine vaccination programme for rubella in pregnancy in the UK, however there is an antenatal screening programme in order to test for rubella immunity. If women are found to be not immune, they cannot have the vaccination during pregnancy as it is a live vaccination.

There is no routine vaccination programme for pneumococcus in pregnancy in the UK.

Question:

You are a junior doctor working in obstetrics and gynaecology. While helping to care for a patient during a vaginal delivery the delivery is suddenly complicated by shoulder dystocia. After immediately calling for senior help you decide to perform McRobert's manoeuvre, by moving the mother onto her back and hyper flexing and abducting her hips, bringing her thighs towards her abdomen.

Which additional measure can aid the effectiveness of the manoeuvre?

A.Fundal pressure

B.Valsalva manoeuvre

C.Bilateral abdominal pressure

D.Suprapubic pressure

E.Coughing

Answer:Suprapubic pressure

Explanation:

The Royal College of Obstetrics and Gynaecology suggest that 'suprapubic pressure should be used to improve the effectiveness of the McRoberts manoeuvre' in their shoulder dystocia guidelines.

[Internet]. 2016 [cited 17 May 2016]. Available from: http://https:www.rcog.org.uk/globalassets/documents/guidelines/gtg4225112013.pdf

Question:

A 55-year-old woman is admitted to the Emergency department as she is experiencing palpitations and breathlessness which suddenly started after breakfast. An ECG is performed which reveals atrial fibrillation. The doctor informs her that she is at an increased risk of stroke and therefore should be started on some anticoagulant medication.

Which one of the following scores measures the risk of stroke in someone with atrial fibrillation?

A.HAS-BLED

B.DRAGON

C.CHA2DS2-VASc

D.ABCD2

E.QRISK2

Answer:CHA2DS2-VASc

Explanation:

The CHA2DS2-VASc score is used to determine the need to anticoagulate a patient who has atrial fibrillation.

The HAS-BLED score estimates the risk of major bleeding for patients on anticoagulation for atrial fibrillation.

The DRAGON score predicts the 3-month outcome in ischaemic stroke patients receiving tissue plasminogen activator (tPA).

The ABCD2 score is used to identify the risk of stroke in patients who have had a suspected TIA.

The QRISK2 score is used to determine the risk of a cardiovascular event in the next 10 years.

Question:

A 30-year-old man who is an immigrant from Albania presents to surgery with a translator. He has been unwell for a number of months and describes losing 8 kgs in weight and having chronic diarrhoea. On examination of his skin the following is seen:

Inside his mouth similar lesions can be seen on his hard palate and there is some bleeding around his gums. What is the most appropriate action?

A.Give IM benzylpenicillin + phone 999

B.Order a chest x-ray

C.Order a HIV test

D.Start vitamin C supplements

E.Order hepatitis C test + cryoglobulin screen

Answer:Order a HIV test

Explanation:

Question:

A 28-year-old male presents to the emergency department (ED) via ambulance, having fallen from his mountain bike whilst cycling down a hill in a nearby forest this morning. He is now unable to weight bear and is complaining of severe pain in his right ankle.

On examination:

Heart rate: 90/minute; Respiratory rate: 16/minute; Temperature: 37.2ºC; Oxygen saturations: 98%; Blood pressure: 110/74 mmHg.

Right ankle: everted to 60º. Significant swelling and erythema over the whole ankle joint, with bruising over the medial malleolus. Two superficial lacerations to the dorsal surface of the foot. Extremely tender to touch and very limited range of motion of the joint. Sensation intact. Weak pulses present.

Left ankle: Non-tender and normal range of motion. Sensation intact and pulses present. Three superficial lacerations to the dorsal surface of the foot.

What is the most appropriate initial step in management of this patient?

A.Closed reduction of right ankle joint

B.Intravenous fluids

C.Intravenous antibiotics

D.Crutches to aid with mobilisation

E.Open reduction, internal fixation of right ankle joint

Answer:Closed reduction of right ankle joint

Explanation:

It is important to reduce an ankle fracture as soon as possible due to risk of damage to the skin

Important for meLess important

Given that his right ankle is everted to 60º, this patient has a significantly displaced ankle fracture. He also has reduced peripheral pulses. The most important first step when managing patients who present with ankle fractures is reduction of the fracture. This is to ensure that the skin overlying the medial malleolus is not compromised. In addition to this, once the fracture has been reduced, it will then be possible to grade the fracture using a classification system e.g. Weber. Therefore, the correct answer is (1).

An open reduction and internal fixation (5) may ultimately be needed, but it is important to reduce the fracture as much as possible first, for the aforementioned reasons.

This patient is currently haemodynamically stable and does not need IV fluids (2) at this moment.

Whilst he may need IV antibiotics (3) if there is concern about contamination of the lacerations on his foot, we currently do not have enough information about these and it is important to reduce the fracture first.

This patient is highly likely to need surgical fixation of his fracture, and whilst mobilisation with crutches (4) may feature in his post-operative management, this is not the most appropriate answer to this question.

Question:

A 35-year-old male intravenous drug user presented to the emergency department with fever, shortness of breath and headache. On examination there was a pan-systolic murmur. His temperature was 39.5ºC and his heart rate was 130/min. His blood tests in the emergency department were:

Hb 140 g/L Male: (135-180)

Female: (115 - 160)

Platelets 448 \* 109/L (150 - 400)

WBC 15.3 \* 109/L (4.0 - 11.0)

Na+ 136 mmol/L (135 - 145)

K+ 3.8 mmol/L (3.5 - 5.0)

Urea 5.4 mmol/L (2.0 - 7.0)

Creatinine 78 µmol/L (55 - 120)

CRP 240 mg/L (< 5)

He was admitted to the ward and started on empirical antibiotic treatment, pending blood culture results. On day 2 of this admission he became anuric and a blood sample revealed the following results:

Na+ 144 mmol/L (135 - 145)

K+ 5.5 mmol/L (3.5 - 5.0)

Urea 11.2 mmol/L (2.0 - 7.0)

Creatinine 210 µmol/L (55 - 120)

Which of the medications below given during this admission is most likely to have caused this patient's deterioration on day 2 of admission?

A.Co-amoxiclav

B.Gentamicin

C.Morphine sulfate

D.Paracetamol

E.Piperacillin with tazobactam

Answer:Gentamicin

Explanation:

Aminoglycosides are nephrotoxic

Important for meLess important

This patient presented with symptoms and signs of acute infective endocarditis, as well as being an intravenous drug user put him at risk of particular condition. Given the presentation and the likely diagnosis, he was likely given a combination of antibiotics and analgesics. On day 2 of the admission, he developed acute kidney injury as evidenced by his inability to pass urine as well as his deranged kidney function tests. The most likely drug to have caused that is gentamicin, which is a nephrotoxic aminoglycoside antibiotic.

Although the dose of co-amoxiclav needs to be adjusted in renal impairment, it is not a common cause of acute kidney injury.

Morphine would need to be stopped or have its dose reduced after renal impairment has developed, but it's not known to cause renal impairment.

Infrequently paracetamol can cause renal impairment in overdose, but not in normal doses.

Piperacillin with tazobactam, similar to co-amoxiclav, the dose would need to be adjusted in renal impairment, but it is rare for this to cause kidney injury.

Question:

A 72-year-old male presents to the cardiology clinic with persistent symptoms of reduced exercise tolerance, peripheral oedema and paroxysmal nocturnal dyspnoea. He suffered an ST-elevation myocardial infarction (STEMI) five years previously from which he developed heart failure shortly afterwards. He is currently taking candesartan and bisoprolol. An echocardiogram shows a left ventricular ejection fraction of 35%.

Which of the following would be most appropriate long-term therapy to prescribe this patient?

A.Diltiazem

B.Dobutamine

C.Digoxin

D.Ramipril

E.Spironolactone

Answer:Spironolactone

Explanation:

Offer a mineralcorticoid receptor antagonist, in addition to an ACE inhibitor (or ARB) and beta-blocker, to people who have heart failure with reduced ejection fraction if they continue to have symptoms of heart failure

Important for meLess important

This patient is presenting with symptoms of chronic heart failure. His echocardiogram confirms this diagnosis. Management of heart failure with reduced ejection fraction is initially with an angiotensin-converting enzyme (ACE) inhibitor (or angiotensin receptor blocker (ARB), as is the case in this patient) and a beta-blocker. As both of these have been prescribed and the patient's symptoms are not controlled, spironolactone (a mineralocorticoid receptor antagonist) should be added.

Diltiazem is incorrect, this is a rate-limiting calcium channel blocker and is, therefore, contraindicated in chronic heart failure as it has a negative inotropic effect.

Digoxin is incorrect. This drug may be used fourth-line in the management of heart failure and only provides symptomatic, not prognostic benefits.

Ramipril is incorrect as this patient is already prescribed candesartan. Combination therapy with ACE inhibitors and ARBs is generally not recommended.

Question:

During a routine health check, a 64-year-old man is noted fine crackles on auscultation of the chest and so the GP requests a chest X-ray. The result prompts him to refer the man to the respiratory team, who conduct a CT scan, which includes the following finding:

CT chest Predominantly lower zone fibrosis

Which of the following is the most likely cause?

A.Ankylosing spondylitis

B.Exposure to asbestos

C.Exposure to coal dust

D.Exposure to crystalline silica dust

E.Tuberculosis

Answer:Exposure to asbestos

Explanation:

Asbestosis causes pulmonary fibrosis predominantly affecting the lower zones

Important for meLess important

The correct answer is exposure to asbestos. Of all the options listed, asbestosis is the only one that leads to lower zone fibrosis. The others cause predominantly upper zone fibrosis. Asbestos exposure may also lead to the development of benign pleural plaques.

Ankylosing spondylitis is rarely associated with upper zone fibrosis, not lower zone. With regards to pulmonary involvement, cysts, cavities and bronchiectasis may also be seen.

Exposure to coal dust would lead to coal worker's pneumoconiosis, which is also associated with predominantly upper zone fibrosis, not lower zone. Nodules may also be visible; compared to nodules in silicosis, they have less well-defined margins and appear more granular.

Exposure to crystalline silica dust would lead to silicosis, again associated with upper zone fibrosis. In about 10-20% of patients, the nodules seen are calcified.

Tuberculosis can lead to consolidation, cavitation, pleural disease and fibrosis on imaging. The fibrosis, however, is again upper zone, not lower zone.

Question:

A 45-year-old man presents to the emergency department. He describes severe muscle cramps for the past day, alongside muscle weakness and aching. He is currently experiencing homelessness.

On examination, he has central obesity, a round puffy face, and visible striae on his abdomen. He has a heart rate of 82/min, a respiratory rate of 12/min, a blood pressure of 190/85 mmHg, a temperature of 37.2ºC and saturations of 99%.

A diagnosis of Cushing's syndrome is suspected and a plasma cortisol level is sent off. Along with other blood tests, a venous blood gas is taken.

What would be expected to be seen on his blood gas?

A.Hypokalaemic metabolic acidosis

B.Hypokalaemic metabolic alkalosis

C.Hyponatraemic metabolic acidosis

D.Hyponatraemic metabolic alkalosis

E.Normal blood gas

Answer:Hypokalaemic metabolic alkalosis

Explanation:

Cushing's syndrome - hypokalaemic metabolic alkalosis

Important for meLess important

This man presents with an initially confusing set of symptoms. He has cushingoid features on examination, including central obesity, 'moon facies' and abdominal striae. His profound hypertension also is in keeping with a diagnosis of Cushing's syndrome. The high cortisol levels seen can exhibit mineralocorticoid (aldosterone) activity causing hypertension. Similarly, this mineralocorticoid-like activity involves cortisol binding the Na+/K+ pump and causing hypokalaemia. This hypokalaemia would explain his symptoms of muscle weakness, tremor and cramping. The mineralocorticoid-like activity also leads to the excretion of hydrogen ions in the renal tubules, with bicarbonate being retained, leading to metabolic alkalosis. Therefore, the correct answer is a hypokalaemic metabolic alkalosis.

Hypokalaemic metabolic acidosis is incorrect. Hydrogen ions are lost when cortisol levels are raised, not gained. Therefore, there would not be an acidosis.

Hyponatraemic metabolic acidosis is incorrect. Sodium ions would actually be retained due to the mineralocorticoid activity, and therefore hypernatraemia would be expected in Cushing's syndrome. Equally, Cushing's syndrome would result in an alkalosis due to the loss of hydrogen ions, not an acidosis.

Hyponatraemic metabolic alkalosis is incorrect. Sodium ions would actually be retained due to the mineralocorticoid activity, and therefore hypernatraemia would be expected in Cushing's disease.

Normal blood gas is incorrect. There would be acid-base and electrolyte disturbances seen in Cushing's syndrome due to the effects of cortisol on aldosterone receptors.

Question:

A 15-year-old boy collapses and dies whilst playing football at school. He had no past medical history of note. Post-mortem examination reveals asymmetric hypertrophy of the interventricular septum. Given the likely underlying diagnosis, what is the individual risk his sister will also have the same underlying disorder?

A.0%

B.25%

C.50%

D.100%

E.66%

Answer:50%

Explanation:

Asymmetric septal hypertrophy and systolic anterior movement (SAM) of the anterior leaflet of mitral valve on echocardiogram or cMR support HOCM

Important for meLess important

The underlying diagnosis is hypertrophic obstructive cardiomyopathy which is an autosomal dominant disorder. His sister, therefore, has a 50% chance of being affected.

In autosomal dominant diseases:

both homozygotes and heterozygotes manifest disease (there is no carrier state)

both males and females affected

only affected individuals can pass on the disease

the disease is passed on to 50% of children

Question:

A 26-year-old woman presents to the GP regarding contraception. She and her partner travel frequently abroad for charity work. They are in a long-term relationship and do not currently want any children. She is currently being treated for pelvic inflammatory disease and would like a method of contraception with the least maintenance possible and something she will not have to remember to take.

Advice has been given regarding the importance of barrier protection to prevent the spread of sexually transmitted infections.

What contraceptive method is most appropriate?

A.Implantable contraceptive

B.Injectable contraceptive

C.Intrauterine device

D.Intrauterine system

E.No option suitable, advise barrier contraception

Answer:Implantable contraceptive

Explanation:

Implantable contraceptives are the most effective form of contraception and are hence very suitable for young women, particularly if they are planning to go travelling, have chaotic lifestyles etc

Important for meLess important

Implantable contraceptive is correct. This patient would like a contraceptive that requires the least maintenance possible and does not require having to remember to take it daily. Ordinarily, this would be the intrauterine device, which is effective for 5 years, however, they have active pelvic inflammatory disease, which is a contraindication. The next option would be the implantable contraceptive, which is effective for 3 years. This makes it suitable for her as it does not require daily administration and may be beneficial in her lifestyle, which may be busy.

Injectable contraceptive is incorrect. Although this does not require much maintenance, it is only effective for 12 weeks compared to the implantable contraceptive, which lasts for 3 years. Given that there are no contraindications in the stem, it would be more appropriate to offer the implantable contraceptive, as it lasts longer and would have to be changed less frequently.

Intrauterine device is incorrect. While this form of contraception lasts for 5 years, this patient has pelvic inflammatory disease, which is a contraindication. The next best option is the implantable contraceptive, which lasts for 3 years.

Intrauterine system is incorrect. While this form of contraception lasts for 5 years, this patient has pelvic inflammatory disease, which is a contraindication. The next best option is the implantable contraceptive, which lasts for 3 years.

No option suitable, advise barrier contraception is incorrect. Although this patient cannot take the intrauterine device or system as they have pelvic inflammatory disease, there is nothing in the stem to suggest that this patient cannot take either the implantable or injectable contraceptive. Because this patient desires the option with the least maintenance possible, the best option would be the implantable contraceptive.

Question:

A 74-year-old man with stage IV chronic kidney disease secondary to type II diabetes mellitus is admitted to the acute medical assessment ward with symptoms of breathlessness and reduced exercise tolerance. He is otherwise systemically well. His blood results are as follows:

Haemoglobin 80 g/l

Mean Corpuscular Volume 90 fl

Mean Corpuscular Haemoglobin 30 pg

Urea 17 mmol/l

Creatinine 300 µmol/l

eGFR 8 ml/min/1.73m2

Given the likely cause of this patient's anaemia, which of the following compounds is the patient most likely to be deficient of?

A.Vitamin B12

B.Ferritin

C.Folate

D.Erythropoietin

E.T3 / T4

Answer:Erythropoietin

Explanation:

Chronic Kidney Disease often leads to anaemia due to reduced levels of erythropoietin

Important for meLess important

In many cases of advanced renal failure, the kidneys' ability to produce erythropoietin is reduced, leading to anaemia of chronic disease. There are several factors involved in renal anaemia, however a lack of erythropoietin is the most significant contributor.

Typically this deficiency manifests as a normochromic, normocytic anaemia, as seen in this patient's blood results.

In Vitamin B12/Folate deficiency and some cases of hypo/hyperthyroidism, a macrocytic anaemia is seen. Low ferritin levels will lead to a microcytic anaemia.

Question:

A 77-year-old female with a long-standing history of chronic kidney disease presents to the nephrology clinic with bone pain and proximal muscular weakness. On examination, a waddling gait is noted. Her blood results show the following:

Hb 123 g/L (115 - 160)

Platelets 240 \* 109/L (150 - 400)

WBC 7.3 \* 109/L (4.0 - 11.0)

Calcium 2.0 mmol/L (2.1-2.6)

Phosphate 1.9 mmol/L (0.8-1.4)

Magnesium 0.8 mmol/L (0.7-1.0)

The doctor suggests she initiates a diet with a low intake of phosphate. Additionally, they prescribe a drug to reduce her phosphate levels.

Which one of the following medications is the most appropriate to prescribe?

A.Alendronate

B.Alfacalcidol

C.Aluminium hydroxide

D.Calcitriol

E.Sevelamer

Answer:Sevelamer

Explanation:

Sevelamer is a non-calcium based phosphate binder that treats hyperphosphataemia in patients with CKD mineral bone disease

Important for meLess important

The correct answer is sevelamer. The patient, with a long-standing history of chronic kidney disease (CKD), is presenting with signs and symptoms of osteomalacia (such as bone pain, proximal myopathy, and waddling gait). As phosphate is renally excreted, if there is impaired renal function - phosphate will build up, 'dragging' the calcium out of the bones resulting in osteomalacia. First-line management is to reduce the dietary intake of phosphate. Additionally, phosphate binders can be prescribed. Sevelamer is a non-calcium-based phosphate binder, it binds to dietary phosphate and prevents its absorption.

Alendronate is a bisphosphonate used for the prevention and treatment of postmenopausal and glucocorticoid-induced osteoporosis. It has no role in decreasing the levels of phosphate. In osteoporosis, the blood results would be normal, making this diagnosis incorrect.

Alfacalcidol is used in patients with chronic kidney disease to supplement a lack of vitamin D. Since it does not need to be processed by the kidneys to be converted into vitamin D, it is useful in patients with substantial kidney damage. It increases the absorption of calcium but it has no role in decreasing the levels of phosphate. It could be useful to increase calcium levels in severely deficient patients, but in this case, the question is focusing on the management of her hyperphosphataemia.

Aluminium hydroxide is an aluminium-based phosphate binder that is rarely used nowadays. Their safety became controversial in the early 1980s after reports of aluminium related neurological and bone disease began to appear. They are mostly used as second-line treatment now.

Calcitriol is the active form of vitamin D. It increases blood calcium mainly by increasing the uptake of calcium from the intestines. It is an incorrect option as the question is focusing on the management of her hyperphosphataemia and this drug has no role in decreasing phosphate levels.

Question:

A 13-year-old boy is brought to the emergency department by his fathers. The boy complains of chest pain. On examination, he is short of breath and has a blue tinge on his lips. He was adopted from sub-Saharan Africa and little is known about his family history other than a 'blood condition' in his maternal grandmother.

His vital signs show that he is hypoxic, tachypnoeic, and has a fever. A chest x-ray shows bilateral full-field opacification.

A subsequent blood smear shows Howell-Jolly bodies and he is treated with an exchange transfusion.

Given the likely underlying diagnosis leading to this presentation, what is the method for definitive diagnosis?

A.Autoantibody screen

B.Flow cytometry

C.Full blood count and reticulocyte count

D.Haemoglobin electrophoresis

E.Repeat blood smear

Answer:Haemoglobin electrophoresis

Explanation:

Definitive diagnosis of sickle cell disease is by haemoglobin electrophoresis

Important for meLess important

This boy has presented with a worrying picture of desaturation. His vague family history, and presence of abnormal cells on a blood smear point towards an underlying haematological problem. Howell-Jolly cells are characteristic of sickle cell disease. In this context, his current presentation may be due to acute chest syndrome - which is a vaso-occlusive crisis of pulmonary vasculature. This leads to pain, shortness of breath, fever, and hypoxia. It is an indication for exchange transfusion in those with sickle cell disease.

Whilst presentation with a known complication of sickle cell, and the findings on his blood smear point towards sickle cell disease, he still requires definitive diagnosis. Haemoglobin electrophoresis is the test of choice. This is where a gel medium and electricity are used to separate out different types of haemoglobin. The presence of haemoglobin S will be indicative of the diagnosis.

Autoantibodies are not useful in the diagnosis of sickle cell disease, as it is not an autoimmune disorder.

Flow cytometry is a technique used to quantify the number of cells, but it is not useful in the diagnosis of sickle cell disease.

A full blood count and reticulocyte count can give clues to the diagnosis. However, it is not specific enough to be a definitive diagnosis.

A repeated blood smear may be carried out, but there is always a margin of error, and therefore a more reliable method is required for definitive diagnosis.

Question:

An 85-year-old female presents with increasing forgetfulness. She is brought in by her daughter who notices that she has been forgetting things and has been getting lost. Her daughter now cooks for her. She has also been talking about a man in her garden, despite the fact she does not have a gardener. The daughter notices that these concerns were improving a few months ago, but has again gotten worse in the past 2 weeks. The patient reports poor sleep where she remembers her dreams vividly.

Her past medical history includes hypertension, hyperlipidaemia, and diabetes. She is on perindopril, rosuvastatin, and metformin. She has never smoked and drinks alcohol.

Which of the following is the most likely cause of her presentation?

A.Vascular dementia

B.Lewy-body dementia

C.Alzheimer's dementia

D.Mixed alzheimer's/vascular dementia

E.Mild cognitive impairment

Answer:Lewy-body dementia

Explanation:

Visual hallucinations with dementia = Lewy body dementia

Important for meLess important

This patient has symptoms consistent with Lewy-body dementia; fluctuating progressively worsening cognition, visual hallucinations, and REM sleep disorder. She may also have parkinsonian symptoms on examination.

Mild cognitive impairment would not be the cause of these symptoms as her cognitive impairment is significant enough to cause an impact on her activities of daily living; her daughter now cooks for her. Mild cognitive impairment is a diagnosis that involves cognitive impairment without impacting activities of daily living.

Vascular dementia usually presents with step-wise worsening in cognition, usually due to strokes, transient ischaemic attacks, or sub-clinical infarctions, rather than fluctuating changes.

Alzheimer's dementia is the most common form of dementia that usually presents initially with worsening short term memory and confusion. It is unlikely to cause REM sleep disorders and visual hallucinations in the early stages of the disease progression.

Question:

A 47-year-old gentleman is admitted via the Emergency department with severe right sided loin pain. This has been coming in 'waves' for the past 3 hours and has now become unbearable. The admitting doctor decides to write him up for some analgesia. What would be the most appropriate to prescribe at this stage?

A.Paracetamol 1g oral

B.Co-codamol 30mg oral

C.Dihydrocodeine 50mg IM

D.Diclofenac 75mg IM

E.Paracetamol 1g IV

Answer:Diclofenac 75mg IM

Explanation:

Guidelines continue to recommend the use of IM diclofenac in the acute management of renal colic

Important for meLess important

Diclofenac IM is the most effective analgesia in acute renal colic and this is recommended by NICE.

The other options are all effective forms of analgesia however they are not recommended as first line in acute renal colic.

NICE clinical knowledge summaries renal colic management:

http:cks.nice.org.uk/renal-or-ureteric-colic-acute#!scenario

Question:

A 6-year-old boy is brought to the GP by his mother. Over the last 6 months, he has experienced shortness of breath and wheezing that are both worse on exertion and relieved with rest. During this time, he has also had a dry cough that is worse at night.

On examination, his chest is clear with normal air entry on both sides. There are no additional chest sounds. He has a past medical history of eczema and allergic conjunctivitis. His father was diagnosed with COPD at 35 years of age and there is no family history on his mother's side.

Given the likely diagnosis, what is the next best step in his management?

A.Fractional exhaled nitrous oxide

B.No investigations needed - clinical diagnosis

C.Spirometry and bronchodilator reversibility

D.Spirometry and fractional exhaled nitrous oxide

E.Trial treatment and assess response

Answer:Spirometry and bronchodilator reversibility

Explanation:

Children aged 5-16 years should have both spirometry and a bronchodilator reversibility (BDR) test to diagnosis asthma

Important for meLess important

Spirometry and bronchodilator reversibility is correct. This patient has signs and symptoms consistent with asthma, characterised by their shortness of breath and dry cough that is worse at night (diurnal variation is present) on a background of eczema and allergic conjunctivitis (both of which are risk factors for asthma). The NICE guidelines focus on using objective tests to diagnose asthma rather than clinical judgement. All children aged 5-16 years of age should have both spirometry and bronchodilator reversibility testing to diagnose asthma. If these are normal, then a fractional exhaled nitrous oxide test should be requested.

Fractional exhaled nitrous oxide is incorrect. This is not the first-line investigation for the diagnosis of asthma in children. All children aged 5-16 years of age should have both spirometry and bronchodilator reversibility testing to diagnose asthma. If these are normal, then a fractional exhaled nitrous oxide test should be requested.

No investigations needed - clinical diagnosis is incorrect. While this method of diagnosing asthma may have been performed in the past, NICE has moved to use objective tests rather than clinical judgement. As such, all children aged 5-16 years of age should have both spirometry and bronchodilator reversibility testing to diagnose asthma.

Spirometry and fractional exhaled nitrous oxide is incorrect. In adults, spirometry with bronchodilator testing and a fractional exhaled nitrous oxide test should all be performed, however, all children aged 5-16 years of age should have both spirometry and bronchodilator reversibility testing to diagnose asthma.

Trial treatment and assess response is incorrect. While this method of diagnosing asthma may have been performed in the past, NICE has moved to use objective tests before starting treatment.

Question:

A 45-year-old gentleman is diagnosed with anal cancer. What is the strongest risk factor for developing anal cancer?

A.History of multiple anal sex partners

B.HIV infection

C.HPV infection

D.Increasing age

E.Smoking

Answer:HPV infection

Explanation:

HPV infection is the strongest risk factor for anal cancer

Important for meLess important

Much like cervical cancer, HPV infection induces oncogenic changes in the anal mucosa leading to anal cancer. All the others are risk factors but HPV infection is the strongest causal link.

Question:

A 36-year-old female presents to accident and emergency with a failure to pass urine for the past 3 days, and abdominal pain. She is currently being treated with antibiotics prescribed by her general practitioner for a urinary tract infection. She is eating and drinking and opened her bowels this morning.

Her past medical history is significant for irritable bowel syndrome and depression which is managed with sertraline. Her last menstrual period was 1 week ago, and she does not suffer from heavy menstrual bleeding.

Which of the following is the most likely cause of this patient’s complaint?

A.Irritable bowel syndrome

B.Sertraline

C.Lower urinary tract infection

D.Constipation

E.Uterine fibroids

Answer:Lower urinary tract infection

Explanation:

Urinary retention can be precipitated by infection of the lower urinary tract

Important for meLess important

This lady presents with acute urinary retention secondary to a lower urinary tract infection. For instance, a lower urinary tract infection can precipitate acute urinary retention due to urethritis, and subsequent urethral oedema.

The commonly reported side-effects of sertraline include abdominal pain, and constipation or diarrhoea (all of which are dose-dependent side effects), however acute urinary retention is not a common side-effect of sertraline.

Uterine fibroids can cause urinary retention in females, however, this patient does not suffer from heavy menstrual bleeding - a classic feature of fibroids - making this explanation less likely.

Constipation is another cause of urinary retention, however, this patient is eating and drinking, and opened her bowel this morning.

Question:

A 76-year-old man is seen in eye clinic for a regular check-up. This is the first time he has attended. He has not noticed any changes to his vision and feels well in himself. He has a history of hypertension, type 2 diabetes, and previous myocardial infarction.

He undergoes fundoscopic examination which shows the following:

What is the most likely diagnosis?

A.Diabetic maculopathy

B.Hypertensive retinopathy

C.Preproliferative diabetic retinopathy

D.Proliferative diabetic retinopathy

E.Wet age-related macular degeneration

Answer:Preproliferative diabetic retinopathy

Explanation:

The image shows a fundoscopy slide of the left eye in an asymptomatic patient with a background of type 2 diabetes and hypertension which should raise suspicion of either hypertension- or diabetes-related eye disease. Fundoscopy findings in this image are outlined below:

1. Hard exudates, indicating lipid/protein deposits. These are clearly seen as yellow deposits on the left side of the image. Hard exudates are seen in both hypertensive and diabetic retinopathy.

2. Scattered dot/blot haemorrhages, most easily seen surrounding the area of hard exudate, and flame haemorrhage in the upper right quadrant of the image. These indicate bleeding retinal vessels and are also seen in both diabetic and hypertensive eye disease.

3. There are no signs of AV nipping (seen by focal narrowing of venules where they cross the arteries) or silver wiring (where arterioles appear white as a result of occlusion of the vessels), which are suggestive of hypertensive retinopathy. There is no obvious neovascularisation in this image.

4. There are no obvious changes to the optic disc. The margins are well-demarcated and the cup-to-disc ratio is normal (<0.5).

Preproliferative diabetic retinopathy is the correct answer. This patient has a background of type 2 diabetes and fundoscopic signs consistent with diabetic neuropathy - the presence of hard exudates and scattered haemorrhages. As there is no sign of neovascularisation, this is likely to represent preproliferative, as opposed to proliferative retinopathy.

Diabetic maculopathy is incorrect. This is a sight-threatening condition and a sign of severe diabetic eye disease. You would expect a history of visual changes in patients with diabetic maculopathy, which is not the case here. Further, as the haemorrhages are seen outside of the macula, this condition can be effectively ruled out.

Hypertensive retinopathy is incorrect. This patient has a history of hypertension and changes on fundoscopy which should raise suspicion of hypertensive retinopathy. However, the absence of vascular changes such as AV nipping or silver wiring should lower suspicion of hypertensive disease as these are early signs of this condition. Further, hard exudates are typically only seen in advanced disease, at which point one would expect a history of vision changes and more advanced signs on fundoscopy such as retinal ischaemia and large haemorrhages. As these are not present, hypertensive retinopathy is unlikely.

Proliferative diabetic retinopathy is incorrect. Proliferative retinopathy is characterised by neovascularisation - the formation of new blood vessels in the retina. There is no neovascularisation in this fundoscopy and thus proliferative retinopathy can be ruled out.

Wet age-related macular degeneration (ARMD) is incorrect. Wet ARMD is differentiated from dry ARMD by the presence of neovascularisation, driven by vascular endothelial growth factor (VEGF). It commonly causes visual changes in patients. As there are no signs of neovascularisation in this image, and the patient is not complaining of changes in his vision, wet ARMD can be ruled out.

Question:

An elderly patient in a nursing home is started on quetiapine due to persistent aggressive behaviour that has not responded to non-pharmacological approaches. Which of the following adverse effects do antipsychotics increase the risk of in elderly patients?

A.Atrial fibrillation

B.Myocardial infarction

C.Aspiration pneumonia

D.Stroke

E.Breast cancer

Answer:Stroke

Explanation:

Antipsychotics in the elderly - increased risk of stroke and VTE

Important for meLess important

Question:

A 24-year-old man presents to the Emergency Department with a flare of his ulcerative colitis. According to the Truelove and Witts' severity index, which of the following is most likely to indicate that this is a severe flare?

A.CRP of 43 mg/L

B.Heart rate of 106 beats per minute

C.Passing 4 stools per day

D.Subjective pain score of 8/10

E.Vomiting 6 times per day

Answer:Heart rate of 106 beats per minute

Explanation:

The Truelove and Witts' severity index is recommended by NICE when assessing the severity of ulcerative colitis in adults. Ulcerative colitis is classified as 'severe' when the patient has blood in their stool, or is passing more than 6 stools per day plus at least one of the following features:

Temperature greater than 37.8°C

Heart rate greater than 90 beats per minute

Anaemia (Hb less than 105g/ L)

Erythrocyte sedimentation rate greater than 30 mm/hour

Any patient with features of severe ulcerative colitis should be admitted to hospital as an emergency. They should be treated with intravenous corticosteroids to induce remission.

Question:

A 2-month-old infant was brought into the emergency department two days ago with a purpuric rash, fever, vomiting, and reduced wet nappies. In the department, he had an episode of seizure activity which self-resolved spontaneously. He was admitted and was investigated for meningitis. Lumbar puncture was performed and a non-turbid sample was sent to the laboratory which showed increased protein levels, raised white cells, and a gram positive organism.

What is the correct management for this infant?

A.IV amoxicillin and IV cefotaxime

B.IV amoxicillin and IV dexamethasone

C.IV amoxicillin only

D.IV dexamethasone only

E.Supportive management only

Answer:IV amoxicillin and IV cefotaxime

Explanation:

Do not use corticosteroids in children younger than 3 months with suspected or confirmed bacterial meningitis

Important for meLess important

This infant has a lumbar puncture result in keeping with bacterial meningitis.

The antibiotic choice for this infant who is less than 3 months old is with IV amoxicillin and IV cefotaxime- this is to provide adequate gram positive and gram negative coverage until a specific pathogen has been identified and microbiological advice can be given. It would be inappropriate to just prescribe amoxicillin as this would not give sufficient coverage.

Children younger than 3 months should not receive corticosteroids.

As the lumbar puncture has shown a gram positive organism and the patient is being managed for bacterial meningitis, it would be inappropriate to not prescribe any antibiotics.

Question:

A 58-year-old man is referred to the community mental health team with a history of obsessive-compulsive disorder (OCD). He describes obsessive thoughts that his family members have come to harm and says that he phones his wife and daughters 3-4 times an hour to check that they are safe. He has previously been referred for cognitive behaviour therapy (CBT) including exposure and response prevention (ERP) and, although he found this helpful, he still has troubling symptoms.

He has a past medical history of hypertension, hypercholesterolaemia, unstable angina and pre-diabetes.

What would be the most appropriate next step in the management of this man’s OCD?

A.Add amitriptyline

B.Add fluoxetine

C.Add sertraline

D.Refer for dialectical behaviour therapy (DBT)

E.Refer for eye movement desensitisation and reprocessing (EMDR)

Answer:Add sertraline

Explanation:

For more severe OCD, or if unresponsive to CBT/exposure and response prevention then add an SSRI

Important for meLess important

This man presents with OCD that has not been fully controlled with CBT and ERP. According to NICE guidelines, this is an indication for adding an SSRI. Both fluoxetine and sertraline are SSRIs, and the key to choosing between them is the patient’s history of unstable angina. The BNF recommends that the SSRI of choice in people with unstable angina or recent myocardial infarction is sertraline.

Amitriptyline is a tricyclic antidepressant (TCA). Due to a superior safety profile, particularly in overdose, SSRIs are usually preferred to TCAs. The NICE guidelines suggest SSRIs as the first-line pharmacological management of OCD.

Dialectical behaviour therapy (DBT) focusses primarily on emotional regulation and is predominantly used in patients with emotionally unstable personality disorder (EUPD). Alternative modalities of therapy are not second-line in the management of OCD, and a trial of a pharmacological treatment would be most appropriate here.

For the same reason, eye movement desensitisation and reprocessing (EMDR) would not be the next step in the management of this patient's OCD. EDMR is another form of psychotherapy, which is predominantly used in post-traumatic stress disorder (PTSD).

Question:

A 57-years-old woman presents to the emergency department with a sudden intense episode of dizziness. Her symptoms began while lying in bed when she turned her head to the side. She experienced two bouts of vomiting accompanied by a sensation that the world was spinning around her.

She has experienced such episodes in the past lasting around 30-60 seconds before self-resolving. Her past medical history is significant for migraines and hypertension. She denies tinnitus or any hearing changes.

Her observations are:

Temperature: 36.9 °C

Blood pressure: 145/90 mmHg

Pulse: 95/min.

Which of the following is the most appropriate immediate management for this patient’s condition?

A.Brandt-Daroff exercises

B.Epley manoeuver

C.Dix-Hallpike manoeuver

D.Refer to ears, nose and throat (ENT) specialist

E.Betahistine

Answer:Epley manoeuver

Explanation:

BPPV

Dix-Hallpike manoeuvre is diagnostic

Epley manoeuvre is for treatment

Important for meLess important

This patient has benign paroxysmal positional vertigo (BPPV), an inner ear disorder leading to a spinning sensation exacerbated by head movement. Canalithiasis (calcium debris) within the semicircular canal leads to the endolymph's improper motion, which results in a spinning sensation. The most appropriate management strategy is to perform canalith repositioning manoeuvre also known as Epley manoeuvre. Epley's manoeuvre involves a stepwise rotation of the head in a way that helps remove the crystals from the semicircular canal.

The Dix-Hallpike manoeuvre is used for the diagnosis of BPPV. It leads to vertigo and nystagmus when the affected ear is downwardly turned.

Brandt-Daroff exercises can be used for the treatment of benign paroxysmal positional vertigo (BPPV). Since the exercises can cause dizziness, they should be done safely, preferably with another person present. The clinician may perform an Epley manoeuvre in the clinic and then recommend Brandt-Daroff exercises to use at home as these are easier to perform.

Betahistine is a drug that helps to prevent vertigo. It's widely used to treat balance problems or vertigo symptoms, such as those caused by Ménière's disease. In patients with BPPV, who cannot undergo canalith repositioning manoeuvres, betahistine may be considered as a treatment option.

ENT consult may be considered once the patient has stabilised. In most cases, the episode will self-resolve however, treatment with a simple manoeuvre like the Epley can usually stop vertigo right away and thus will be the most appropriate initial management strategy.

Question:

A 62-year-old woman attends the emergency department with a 3-day history of increased shortness of breath, cough with green sputum, and reduced exercise tolerance. She has COPD and takes a salbutamol inhaler, combined glycopyrronium and indacaterol inhaler, and oral prednisolone to manage her symptoms. She is being currently worked up for BIPAP home therapy. Her observations show respiratory rate 22/min, oxygen saturations of 85% in room air, heart rate of 86/min, temperature of 37.7ºC, blood pressure of 145/78mmHg.

What is the most likely organism to have caused her presentation?

A.Coxsackievirus

B.Haemophilus influenzae

C.Influenza A virus

D.Staphylococcus aureus

E.Streptococcus pneumoniae

Answer:Haemophilus influenzae

Explanation:

The most common organism causing infective exacerbations of COPD is Haemophilus influenzae

Important for meLess important

This patient is presenting with symptoms of an infective exacerbation of COPD - the most common organism causing this is Haemophilus influenzae. It has been found that strains of this bacteria causing COPD exacerbations will often induce a greater amount of airway inflammation and have increased virulence than strains that only colonise patients and do not cause infective symptoms. As patients with COPD have reduced mucociliary clearance, they are vulnerable to being overwhelmed by H. influenzae which leads to airway inflammation and increased work of breathing.

Coxsackievirus is associated with hand, foot, and mouth disease. This infection predominantly affects children but can affect adults (particularly those who are immunocompromised). This patient is not presenting with the typical symptoms of hand, foot, and mouth disease - sore throat, fever, and maculopapular rash on hands, foot, and mucosa - making this option incorrect.

Influenza A virus is associated with the pandemic 'bird flu' and is not the most common organism to cause infective exacerbations of COPD.

Staphylococcus aureus is not commonly associated with infective exacerbations of COPD. This bacteria is more commonly seen in mild cases of skin infections or can lead to infective endocarditis and is associated with biofilms causing infection.

Streptococcus pneumoniae is an organism associated with infective exacerbations of COPD but is not the most common organism.

Question:

An 80-year-old man presents to his general practitioner due to an episode of loss of vision and weakness in his left arm this morning. This episode lasted 20 minutes with complete recovery. He is asymptomatic at the time of presentation. He discloses a similar episode occurring two days prior however did not seek medical attention. He is an ex-smoker with a past medical history of hypertension. He is sent to hospital and received a diffusion-weighted magnetic resonance imaging scan which shows an area of infarction.

Given the presentation, what is the most likely diagnosis?

A.Hypoglycaemia causing the focal weakness and loss of vision

B.Migraine due to the symptoms and the lack of infarction on imaging

C.Stroke due to the presence of acute infarction on imaging

D.Transient ischaemic attack (TIA) due the lack of infarction on imaging

E.Transient ischaemic attack (TIA) due the symptoms lasting < 24 hours

Answer:Stroke due to the presence of acute infarction on imaging

Explanation:

The definition of a TIA is now tissue-based, not time-based: a transient episode of neurologic dysfunction caused by focal brain, spinal cord, or retinal ischaemia, without acute infarction

Important for meLess important

Hypoglycaemia is a differential diagnosis for stroke and should be considered in similar presentations. However, it is more common in patients taking hypoglycaemic medications and given the history of a similar episode, can indicate a more serious diagnosis.

Migraine is not the correct answer as it rarely causes a transient loss of vision with focal weakness. Although it can occur, cerebrovascular accidents must be ruled out first.

Stroke is the correct answer. Although the patient states the symptoms have resolved, the definition of a TIA is tissue-based, not time-based. This means that a TIA can only be diagnosed if there is no acute infarction on imaging. Additionally, his past medical history and previous episode increase his risk of stroke.

TIA is incorrect as the patient had infarction detected on MRI which indicates a stroke diagnosis.

The diagnosis of TIA due to the symptoms is incorrect as the definition of a TIA is no longer time-based. This means that not all episodes that last less than 24-hours are automatically classified as a TIA. This is because the previous definition may encompass minor strokes that have resolved symptoms.

Question:

A 45-year-old woman presents to her GP with a new rash which developed shortly after a bee sting yesterday.

She has a widespread, raised, erythematous rash that covers her back and chest in patches. The patches developed not long after the bee sting. She is finding it incredibly itchy, particularly at night time.

Apart from the rash, the patient is well and has no swelling of the lips or tongue and no breathing difficulties.

Given the likely diagnosis, what is the most appropriate first-line treatment option?

A.Hydrocortisone ointment

B.Hydroxyzine

C.IM adrenaline

D.Loratadine

E.Prednisolone

Answer:Loratadine

Explanation:

Non-sedating antihistamines are first-line for acute urticaria

Important for meLess important

This patient is describing a typical acute urticarial rash in response to a bee sting. Other common triggers include food allergies, infections, heat or cold exposure or some drugs such as NSAIDs or antibiotics.

The correct answer is loratadine which is a non-sedating antihistamine. These are the first-line management of urticaria.

Hydrocortisone ointment is used for dry and itchy skin conditions such as dermatitis or eczema but is not typically used in urticaria.

Hydroxyzine is an older, sedating antihistamine, that is taken at night time. It can be used for itch or urticaria but is not first-line due to sedating effects and concerns around QT prolongation and arrhythmias.

If you were suspicious of anaphylaxis then IM adrenaline is the correct emergency treatment, however, there is no evidence of this in this patient given the lack of life-threatening airway, breathing or circulatory difficulties and the fact she has presented the day after the bee sting also points away from this option.

Prednisolone can be used as a second-line treatment for urticaria if antihistamines have failed to control the symptom adequately but should only be given for short courses at a minimal dose to control symptoms.

Question:

A 48-year-old male presents to the acute medical unit with intermittent abdominal pain in the right upper quadrant (RUQ). The pain started 5 hours ago, and is described as a sharp pain that comes and goes. The pain does not radiate anywhere, but it has progressively worsened throughout the day.

On inspection, the patient looks in pain at rest, but does not appear clammy or pale. He is very tender in the right upper quadrant, but no guarding or rebound tenderness is felt.

His observations include:

Heart rate = 110 beats per minute.

Respiratory rate = 18 breaths per minute.

Blood pressure = 136/90 mmHg.

Temperature = 38.2ºC.

Which of the following is the most appropriate next investigation to perform?

A.Abdominal CT scan

B.Abdominal X-Ray

C.Endoscopic retrograde cholangiopancreatography (ERCP)

D.Magnetic resonance cholangiopancreatography (MRCP)

E.Ultrasound scan

Answer:Ultrasound scan

Explanation:

Ultrasound is the investigation of choice for suspected acute cholecystitis

Important for meLess important

The top differential diagnoses here include biliary colic, acute cholecystitis and ascending cholangitis. Acute cholecystitis is the most likely due to the the 5 hour history of abdominal pain (biliary colic usually self resolves within 2 hours) and the slight systemic upset (patients with ascending cholangitis are usually much sicker).

The most appropriate investigation is an ultrasound scan due to its non-invasive and low-cost nature and high sensitivity for detecting gallstones and evaluating gallbladder abnormalities (such as gallbladder size and ductal inflammation).

Abdominal CT and X-rays are inferior to ultrasound scans as they have radiation risks.

Although MRCP is a non-invasive technique, which images the hepatopancreatobiliary tract, it is best to do ultrasound scan first to get a better idea of the clinical picture, before moving to more detailed investigations such as MRCP.

ERCP is a diagnostic and interventional technique, but usually requires other imaging first due to potential complications such as perforation.

Question:

A 35-year-old man with known sickle cell disease presents to the emergency department with rapid-onset chest pain. He mentions he felt 'dizzy' and very thirsty yesterday after prolonged working outside in his garden in the sun. His chest is clear and there is no cough or expectorated sputum.

What is the most appropriate management for this condition?

A.Opiates + IV fluids

B.Opiates + oxygen + IV fluids

C.Oxygen + IV fluids

D.Oxygen + opiates

E.Oxygen + opiates + hydroxyurea

Answer:Opiates + oxygen + IV fluids

Explanation:

The main components for managing sickle cell crisis should be analgesia, oxygen, and IV fluids. You can also consider antibiotics if you suspect an infection, and transfusion if the Hb is low

Important for meLess important

This patient is presenting with a sickle cell crisis, which has likely been precipitated by recent dehydration.

The main aspects of managing this man's sickle cell crisis are giving oxygen, analgesia e.g. opiates, and IV fluids. Hence this option is correct. Oxygen helps to counteract the deficient tissue oxygenation caused by vaso-occlusive crises while giving opiates to this patient will relieve the pain, which can be quite severe. Finally, IV fluids should be given to correct his dehydration to increase circulating plasma volume, decrease blood viscosity and thereby reduce the sickling of red blood cells to reduce the length of his sickle cell crisis.

Hydroxyurea is used for the long-term prophylactic management of sickle cell anaemia to reduce the risk of sickle cell crisis, therefore the option with hydroxyurea is incorrect for this patient's management.

The options that omit oxygen, opiates, or IV fluids are incorrect as all three are required for this patient.

Question:

A 59-year-old woman presents to her general practitioner with fever and jaundice. She is a known intravenous drug user. The doctor orders a hepatitis B serology panel. The results show the following:

HBsAg positive

Anti-HBc IgG positive

Anti-HBc IgM negative

What is the interpretation of her results?

A.Acute hepatitis B infection

B.Chronic hepatitis B infection

C.Immunity due to previous hepatitis B infection

D.Previous hepatitis B immunisation

E.Susceptibility to hepatitis B infection

Answer:Chronic hepatitis B infection

Explanation:

Positive anti-HBc IgG, negative anti-HBc IgM and negative anti-HBc in the presence of HBsAg implies chronic HBV infection

Important for meLess important

The patient is HBsAg positive. This marker is the first one to become positive in infection, so its positivity means that there is an acute or chronic infection. Anti-HBc IgG is positive, meaning that the patient has developed long-term antibodies to the core antigen of the virus. At the same time, Anti-HBc IgM is negative, meaning that the infection is not acute, but chronic.

An acute infection would present with positive HBsAg (first disease marker), anti-HBc IgM would be positive and anti-HBc IgG negative.

Immunity due to previous hepatitis B infection would present with HbsAg negative (no infection at the moment), and positive anti-Hbc and anti-HBs.

Immunity due to previous hepatitis B immunization would present with all negative results except for anti-HBs that are inoculated with the vaccine.

Susceptibility to hepatitis B infection would present with all negative results.

Question:

A 22-year-old man sustains an open tibial fracture after an accident with farmyard machinery. He has an 8cm gaping and ragged wound overlying a simple oblique fracture of his distal tibia. The limb is neurovascularly intact.

Which is the most appropriate initial management?

A.ORIF on the next trauma list

B.Immediate wound debridement and ORIF

C.ORIF within 12 hours

D.Immediate wound debridement and application of spanning external fixation device

E.Wound debridement and application of spanning external fixation device within 12 hours

Answer:Immediate wound debridement and application of spanning external fixation device

Explanation:

Definitive management of open fractures should be delayed until soft tissues have recovered

Important for meLess important

This is a heavily contaminated wound due to the presence of farmyard equipment. All farm injuries are automatically classed as at least Gustilo grade IIIa.

There is no indication for wound debridement or 'mini washouts' in the ED and this should be done in theatre immediately for contaminated wounds, within 12 hours for high energy injuries and 24 hours for all other injuries.

Definitive surgical fixation can be done initially only if it can be followed by definitive soft tissue coverage. However more often than not an external fixation device is used as an interim measure while soft tissue coverage is achieved (which should be done within 72 hours).

references:

https://www.orthobullets.com/trauma/1003/gustilo-classification

https://www.boa.ac.uk/wp-content/uploads/2017/12/BOAST-Open-Fractures.pdf

Question:

A 30-year-old man was admitted via the emergency department with central crushing chest pain that radiated to his jaw and left arm. His troponins were found to be elevated, and his ECG showed sinus tachycardia. He was diagnosed and managed as a non-ST elevation myocardial infarction (NSTEMI).

Which of the following suggests the worst prognostic indicator for survival in this patient?

A.Blood pressure 75/40 mmHg

B.Bibasal crepitations

C.T-wave inversion on ECG

D.Creatinine 100 µmol/L

E.Blood pressure 170/65 mmHg

Answer:Blood pressure 75/40 mmHg

Explanation:

Cardiogenic shock is a poor prognostic indicator in acute coronary syndrome

Important for meLess important

The Global Registry of Acute Coronary Events (GRACE) score is used to estimate a patient's prognosis following an acute myocardial infarction. The signs above generally present themselves with heart failure. However, the low blood pressure (mmHg) is the correct answer in this case as the presence of this suggests the patient is tipping into cardiogenic shock and this carries the worst prognostic indicator.

A BP of 170/65 mmHg is expected during myocardial infarction. However, the GRACE score only takes into account shock as prognostic criteria, which is seen by low blood pressure.

Bibasal crepitation indicates pulmonary oedema and is in keeping with Killip class III but cardiogenic shock confers Killip class IV, giving a worse prognosis.

A normal creatinine does not confer a worse prognosis in acute coronary syndrome patients. The scoring system only takes into account raised creatinine when determining prognosis.

There is no clear association with T-wave inversion and worse prognosis in acute coronary syndrome. GRACE score takes into account ST-segment changed rather than T-wave changes.

Question:

A 39-year-old woman presents with bloating and mild lower abdominal pain. The pain started 2 hours ago, and the bloating has been increasing for 6 hours.

On examination, there is abdominal tenderness, ascites but no guarding. She has no vaginal bleeding. Her vital signs include a heart rate of 97/minute, a blood pressure of 89/52 mmHg and a respiratory rate of 24/minute.

She is currently undergoing IVF treatment and received her final hCG injection 6 days ago. Whilst undergoing treatment, she has been having regular, unprotected sex.

A urinary pregnancy test is positive.

What is the most likely diagnosis?

A.Ovarian cyst rupture

B.Ovarian hyperstimulation syndrome

C.Ovarian torsion

D.Red degeneration

E.Ruptured ectopic pregnancy

Answer:Ovarian hyperstimulation syndrome

Explanation:

Ovarian hyperstimulation syndrome is a potential side-effect of ovulation induction

Important for meLess important

This woman presents with worrying symptoms that are likely to be of a gynaecological origin. The evidence of ascites, low blood pressure and tachycardia suggest that there has been a loss of fluid into the abdomen. She is not peritonitic suggesting that it is less likely the fluid is a catastrophic haemorrhage. A history of hCG injection in the past week should raise suspicion of ovarian hyperstimulation syndrome. IVF is a major risk factor for this condition, injectable treatments such as hCG represent a great risk than oral fertility agents like clomiphene.

Ovarian cyst rupture is incorrect. Ovarian cyst rupture can occur in a woman undergoing fertility treatment, but the expected presentation would be different. It wouldn't explain this woman's ascites or the bloating. The rupture of the cyst is likely to cause chemical peritonitis, with the primary symptom being severe abdominal pain, whereas this woman only has mild pain.

Ovarian torsion is incorrect. This is a known complication of ovarian hyperstimulation syndrome as the enlarged ovary is at increased risk of torsion. However, it does not match this presentation. It would present with significantly more pain, and would not cause ascites or bloating. Torsion is associated with nausea and vomiting.

Red degeneration is incorrect. This is a painful complication of fibroids, in which they degenerate in the second or third trimester of pregnancy, due to the hormonal changes. It wouldn't explain the majority of this woman's symptoms, or fit the timeline.

A ruptured ectopic pregnancy is incorrect. This condition would likely present with a patient who is much more clinically unwell. The abdominal pain would be intense, there would be signs of peritonitis, and there may also be vaginal bleeding. These symptoms are not present in this case.

Question:

A 30-year-old man presents with a two-week history of a productive cough. Whilst examining him you notice a large number of atypical naevi over his torso. On his back you count between 20-25 moles. He reports no change in any of his moles, no bleeding and no itch. One particular mole is noted due to the irregular border. It is 6 \* 4 mm in size.

What is the most appropriate action?

A.Refer to dermatology for photo mapping

B.Refer under the two-week rule to dermatology

C.Advise about sun protection + arrange gene testing for xeroderma pigmentosum

D.Advise about sun protection + take a digital photo for his records + review in 1 month

E.Advise about sun protection + take a digital photo for his records

Answer:Refer under the two-week rule to dermatology

Explanation:

This is very likely to be a melanoma and the patient should be fast-tracked to dermatology. Due to the location and the number of moles he has it is unlikely that he would have noticed any change

Question:

A 52-year-old man is seen in the hypertension clinic. He was diagnosed around three months ago and started on ramipril. This has been titrated up to 10mg od but his blood pressure remains around 156/92 mmHg.

What is the most appropriate next step in management?

A.Add amlodipine AND indapamide

B.Add amlodipine OR bisoprolol

C.Switch ramipril to losartan

D.Add amlodipine OR indapamide

E.Add losartan

Answer:Add amlodipine OR indapamide

Explanation:

Poorly controlled hypertension, already taking an ACE inhibitor - add a calcium channel blocker or a thiazide-like diuretic

Important for meLess important

The 2019 NICE guidelines changed so that if a patient is already taking an ACE-inhibitor or an angiotensin receptor either a calcium channel blocker (e.g. amlodipine) or a thiazide-like diuretic (e.g. indapamide). Previous guidelines suggested that only a calcium channel blocker should be added at this stage.

Question:

A 78-year-old man presents with a 2-week history of profuse loose stools with severe abdominal pain over the past 2 days.

He has lost his appetite and is only tolerating small amounts of fluid over the past 24 hours.

On examination, his heart rate is 118bpm, respiratory rate is 22 breaths/min, temperature 38.1ºC and blood pressure is 104/74 mmHg. He has significant left iliac fossa tenderness.

He is admitted urgently, with a stool culture confirming Clostridium difficile infection and severe colitis without perforation on imaging.

What is the most appropriate treatment for this patient?

A.Bezlotoxumab

B.Faecal microbiota transplant

C.IV vancomycin for 10 days

D.Oral fidaxomicin

E.Oral vancomycin AND IV metronidazole

Answer:Oral vancomycin AND IV metronidazole

Explanation:

In life-threatening C. difficile infection treatment is with ORAL vancomycin and IV metronidazole

Important for meLess important

Oral vancomycin AND IV metronidazole are used to treat life-threatening Clostridium difficile infection. The presentation here is concerning for a life-threatening infection given the tachycardia, tachypnoea and fever alongside the inability to tolerate fluids for 24 hours.

Bezlotoxumab is a monoclonal antibody that targets Clostridium difficile toxin B. NICE do not currently support its use to prevent recurrences as it is not cost-effective.

Faecal microbiota transplant may be considered for patients who've had 2 or more previous episodes, not on the first recurrence.

IV vancomycin is ineffective and should not be used for Clostridium difficile.

Oral fidaxomicin should be used to treat recurrent infection within 12 weeks of symptom resolution.

Question:

A 68-year-old male presents with muscle ache and constant lower back pain, worsened by activity. Blood tests reveal:

Creatine kinase 100 u/l

Na+ 139 mmol/l

K+ 3.9 mmol/l

Urea 8.4 mmol/l

Creatinine 142 umol/l

Calcium 3.4 mmol/l

Phosphate 3.7 mg/dl

ALP 100 u/l

Albumin 27 g/l

Urinalysis shows:

Blood ++

Protein +++

Leukocytes -

Nitrites -

What is the most likely underlying diagnosis?

A.Paget's disease

B.Prostate cancer

C.Rhabdomyolysis

D.Myeloma

E.Urinary tract infection

Answer:Myeloma

Explanation:

The hypercalcaemia and proteinuria indicate myeloma. Impaired renal function is typical. Lower back pain is classical, a symptom of osteolytic lesions in the lower spine.

Paget's disease is unlikely with a normal ALP.

Prostate cancer explains the hypercalcaemia but not the proteinuria or the patients symptoms.

Rhabdomyolysis is unlikely given the normal creatine kinase.

Urinary tract infection is unlikely given the absence of leukocytes or nitrites on urinalysis.

Question:

A 65-year-old man presents to the emergency department with a very sudden onset headache. He describes it as excruciating pain behind his eyes. He reports this is associated with nausea, photophobia, and an inability to stand up without feeling faint. His past medical history is significant for mild untreated hypertension, and a non-functioning benign pituitary adenoma, which is being monitored.

On examination, his eye movements are limited, and he has a loss of peripheral vision. The pupils look normal and there is no redness. His vital signs are normal, apart from a blood pressure of 95/65 mmHg.

What is the most likely diagnosis?

A.Meningitis

B.Migraine

C.Pituitary apoplexy

D.Sinusitis

E.Subarachnoid haemorrhage

Answer:Pituitary apoplexy

Explanation:

Sudden onset headache, visual field defects + evidence of pitutary insufficiency (e.g. hypotension) → pituitary apoplexy

Important for meLess important

This man presents with a sudden onset of a wide constellation of symptoms. The most significant part of his history is that of a pituitary macroadenoma. Combined with his retro-orbital headache, and visual field defects, a pathology of the pituitary should be expected. In this case, the answer is pituitary apoplexy, which is due to an abrupt haemorrhage or infarction in the pituitary, causing it to lose its function.

A sudden onset 'thunderclap' headache is the most common presenting feature and is mostly felt behind the eyes - this is due to local meningeal inflammation from necrosis/inflammation of the pituitary. His visual field defects are due to local compression of the optic chiasm, and his limited eye movements are due to an increase in intracranial pressure. His nausea, vomiting and photophobia are due to local meningeal irritation. His hypotension is particularly significant, given that he is normally hypertensive. It is associated with an inability to stand up without feeling faint (postural hypotension). This is likely due to pituitary insufficiency, where apoplexy has caused a corticotroph deficiency. Corticotroph deficiency is the most common deficiency, but any pituitary hormone may be affected, and cause associated symptoms.

Meningitis may be suspected due to the signs of meningeal irritation (i.e. photophobia and nausea). However, this is made less likely by the absence of fever and other signs of meningism, as well as the characteristic headache and the very sudden onset.

Migraine may present in similar ways, with similar symptoms. However, it would not explain the sudden onset hypotension or ocular problems, and equally, it would not be expected to present with such a severe and acute clinical picture.

Sinusitis may produce the type of headache described, but would not explain the majority of the other symptoms, and would not be expected to be this acute. It would also likely present with purulent nasal discharge, and middle ear problems (i.e. pain, a feeling of fullness, or changes in hearing).

Subarachnoid haemorrhage should be considered in pituitary apoplexy, especially given the characteristic sudden-onset headache. Subarachnoid haemorrhage tends to radiate towards the occiput. It could explain the majority of the other symptoms, apart from hypotension. Subarachnoid haemorrhage is more likely to produce sudden hypertension due to sympathetic activation. This fact, plus the evidence of a pituitary macroadenoma suggesting an alternative cause, makes this diagnosis less likely.

Question:

A 4-month-old boy is failing to gain weight and has had recurrent chest infections since birth. On examination, he looks thin and tired. Auscultation of the precordium reveals a continuous murmur heard loudest under the left clavicle. Which of the following is most likely?

A.Patent ductus arteriosus

B.Pulmonary stenosis

C.Innocent murmur

D.Atrial septal defect

E.Ventricular septal defect

Answer:Patent ductus arteriosus

Explanation:

Although the symptoms of poor weight gain and recurrent infections can overlap with a lot of these conditions it is the nature of the murmurs which differentiates the different disorders. Patent ductus is associated with a continuous murmur whilst Pulmonary stenosis presents with a systolic murmur. The symptoms described rule out an innocent murmur which is heard due to normal circulation throughout the heart and disappears with adulthood. ASD's have a fixed split S2 sound due to the increased venous return overloading the right ventricle during inspiration and delaying closure of the pulmonary valve. VSD are associated with a pansystolic murmur.

Question:

A 31-year-old man presents to his GP with a 2-month history of constant abdominal pain and early satiety. He has hypertension for which he takes enalapril.

On examination, he is mildly tender in both flanks. Well-circumscribed masses are palpable in both left and right flanks. A soft systolic murmur is heard loudest at the apex.

His observations are heart rate 67/min, blood pressure 152/94mmHg, temperature 37.2ºC, respiratory rate 14/min, saturations 97%.

Which additional feature is most likely to be found in this patient?

A.Hepatomegaly

B.Colonic polyps

C.Sensorineural deafness

D.Angiofibromas

E.Thrombocytopenia

Answer:Hepatomegaly

Explanation:

ADPKD is associated with hepatomegaly (due to hepatic cysts)

Important for meLess important

The patient in this case has autosomal-dominant polycystic kidney disease (ADPKD). ADPKD often presents with abdominal pain and early satiety as the kidneys occupy a large volume of the abdomen. Traction on the kidney pedicle can also cause pain. The presence of hypertension, bilateral flank masses and a systolic apical murmur (suggesting mitral valve disease) also point towards this diagnosis.

Extra-renal features of ADPKD include:

Hepatic cysts which manifest as hepatomegaly

Diverticulosis

Intracranial aneurysms

Ovarian cysts

Colonic polyps are not a feature of ADPKD.

Angiofibromas are a feature of tuberous sclerosis (patients with this disease may have renal cysts). Tuberous sclerosis is usually diagnosed in childhood and is associated with epilepsy and cognitive impairment.

Sensorineural deafness is associated with Alport's syndrome. Alport's syndrome typically presents with haematuria and progressive renal failure, not renal enlargement.

Thrombocytopenia is not a feature of ADPKD.

Question:

A colleague of yours has admitted that they haven't gotten the vaccinations their trust recommends for common but serious illnesses. On enquiring why, he admits that he partly hasn't bothered to make an appointment but also doesn't particularly like needles. He denies having any problems with vaccines in the past in terms of allergy or any other health issues.

What is the most appropriate course of action he should take?

A.Since most of his colleagues including you are immunised, herd immunity means he doesn't need to be vaccinated

B.If he is scared of needles then he shouldn't need to be vaccinated

C.He should try to wear PPE as conscientiously as possible to avoid spreading any infections

D.He has a duty to his patients to be immunised against serious common diseases if he has no contraindications

E.He could make sure he takes the appropriate leave when he is unwell

Answer:He has a duty to his patients to be immunised against serious common diseases if he has no contraindications

Explanation:

Vaccinations will be part of almost all doctor's experience of taking on a job in a hospital. They will normally be administered by the local occupational health department and it is unlikely that many would get very far without having them.

The GMC is quite clear that you should be immunised against common communicable disease unless it is contraindicated. This is so that your health does not pose risks to colleagues, patients or others.

GMC: Risks posed by your health

http://www.gmc-uk.org/guidance/goodmedicalpractice/yourhealth.asp

Question:

You are called to a 33-year-old man with tachycardia. He is haemodynamically stable with a heart rate of 136 bpm. His ECG shows regular, narrow QRS complexes. The patient has performed vagal manoeuvres, which have not resolved the tachycardia. You administer 6mg IV adenosine and the tachycardia has still not resolved.

What is the next step in the management of this patient?

A.Adenosine

B.Amiodarone

C.Atropine

D.Beta blocker

E.Magnesium IV

Answer:Adenosine

Explanation:

For an SVT, the Resus Council recommend escalating adenosine doses of 6mg → 12mg → 18 mg

Important for meLess important

Adenosine is correct. For a tachycardia with a regular and narrow QRS complex. First line management is vagal manoeuvres. If this does not terminate the tachycardia, then 6mg IV adenosine, then if unsuccessful: 12mg IV adenosine, then if unsuccessful: 18mg IV adenosine.

Amiodarone is incorrect. In tachycardias, amiodarone is used in the management of ventricular tachycardia.

Atropine is incorrect. Atropine is used in the management of bradycardia.

Beta blocker is incorrect. A beta-blocker may be used in the management of regular, narrow QRS complex tachycardias if escalating doses of adenosine are unsuccessful, and in the management of atrial fibrillation.

Magnesium IV is incorrect. This is used in the management of torsades de pointes.

Question:

A 56-year-old gentleman presents with vomiting, severe crampy abdominal pain, loss of appetite. Patient has not had a bowel movement or passed gas in the last three days. On examination the abdomen is distended and generalised tenderness is present.

Which medication should be avoided in this patient?

A.Cyclizine

B.Metoclopramide

C.Morphine

D.Ondansetron

E.Phosphate enema

Answer:Metoclopramide

Explanation:

Avoid metoclopramide in bowel obstruction

Important for meLess important

Metoclopramide should be avoided as it is a pro-kinetic anti-emetic so could cause a perforation in bowel obstruction.

Cyclizine and ondansetron are both anti-emetics which would improve the patient's symptoms and are not pro-kinetic so do not increase the risk of perforation.

Morphine would help with the patient pain and is not contraindicated in bowel obstruction.

Phosphate enema would be unlikely to help the situation but there should be no adverse effects.

Question:

A 50-year-old man presents to the emergency department complaining of severe diarrhoea and vomiting over the last week. As part of his initial assessment, an ECG is carried out, which shows a polymorphic ventricular tachycardia. His blood pressure is 118/65 mmHg, his heart rate is 84 bpm, and his GCS is 15/15. Routine bloods are taken.

Na+ 136 mmol/L (135 - 145)

K+ 4 mmol/L (3.5 - 5.0)

Bicarbonate 24 mmol/L (22 - 29)

Magnesium 0.4 mmol/L (0.7-1.0)

Urea 6 mmol/L (2.0 - 7.0)

Creatinine 120 µmol/L (55 - 120)

What should the initial management be?

A.Adenosine

B.DC cardioversion

C.Defibrillation

D.IV magnesium

E.Oral magnesium

Answer:IV magnesium

Explanation:

Hypomagnesaemia: IV magnesium is usually given if <0.4 mmol/L or tetany, arrhythmias, or seizures

Important for meLess important

IV magnesium is the correct answer. This patient has presented with severe diarrhoea and vomiting and a polymorphic ventricular tachycardia. It is likely that his GI losses have lead to hypomagnesaemia, which in turn has provoked torsades des pointes. This, in combination with his biochemical hypomagnesaemia < 0.4 mmol/L, means that the correct management is IV magnesium.

Oral magnesium is incorrect. Whilst it is an appropriate option for mild hypomagnesaemia, it is not sufficient to replace this patient's deficit and is not the correct management choice given his torsades des pointes.

DC cardioversion is not appropriate in this situation. Torsades des pointes can deteriorate into sustained ventricular tachycardia (VT), which is managed using synchronised DC shocks if the patient becomes haemodynamically unstable.

Defibrillation is incorrect, as it is only indicated in cardiac arrest with a shockable rhythm such as VT or ventricular fibrillation (VF).

Adenosine is incorrect. Adenosine is used to treat narrow-complex supraventricular tachycardias such as SVT. In this case, the patient is in a wide-complex ventricular tachycardia.

Question:

A 30-year-old woman who has emigrated from Russia is investigated for a chronic cough lasting over six months. A chest x-ray is ordered:

© Image used on license from Radiopaedia

What is the most likely underlying diagnosis?

A.Mycoplasma pneumonia

B.Aspergilloma

C.Lung cancer

D.Legionella pneumonia

E.Tuberculosis

Answer:Tuberculosis

Explanation:

Consolidation is seen in the left upper lobe. Two calcified granulomas can also be seen on the left, one near the hilum and the second in the left lower lobe.

Question:

An 89-year-old man attends your clinic, complaining of bright spots in his vision that come and go. He has a past medical history of asthma, triple vessel coronary artery disease opting for medical management of his anginal symptoms, and has just completed a course of itraconazole for a fungal infection. His heart rate is 60bpm and blood pressure 120/70mmHg.

Which of his regular medications is most likely responsible for his symptoms?

A.Amlodipine

B.Bezafibrate

C.Ivabradine

D.Ranolazine

E.Ventolin

Answer:Ivabradine

Explanation:

Ivabradine use may be associated with visual disturbances including phosphenes and green luminescence

Important for meLess important

Ivabradine is indicated for the symptomatic relief of angina in patients with a heart rate >70, as an alternative to first line therapies. It is also indicated for the treatment of chronic heart failure (NYHA II-IV) in addition to standard therapy, in patients with a heart rate of >75.

The mode of action of ivabradine is by inhibition of If channels (known as funny channels), I = current, f =funny. These funny channels are so called because of their unusual features compared to other ion channels. They are mixed sodium and potassium channels found in spontaneously active regions of the heart such as the sinoatrial node and are triggered by hyperpolarisation. Activated funny channels allow an influx of positive ions, triggering depolarisation and are therefore responsible for the spontaneous activity of cardiac myocytes.

By inhibiting If channels ivabradine delays depolarisation in the sinoatrial node and therefore selectively slows heart rate.

The commonest side effect caused by ivabradine is transient luminous phenomenon (reported by up to 15% of patients), such as bright spots appearing in their field of vision. Less commonly blurred vision is reported. Patients should be informed of this common side effect before starting the medication. The visual side effects of ivabradine are likely to be mediated by inhibition of a channel similar to the If channel found in the retina called the Ih channel. The h = hyperpolarisation-activated, these channels were formerly called IQ channels, Q = queer, again for their unusual characteristics.

Ivabradine is metabolised by oxidation through cytochrome P450 3A4 (CYP3A4) only. Therefore drugs that induce (e.g rifampicin) or inhibit (e.g erythromycin, itraconazole) CYP3A4, will decrease or increase the plasma concentration of ivabradine respectively. In this case the patient has been taking the potent CYP3A4 inhibitor Itraconazole, this would have increased the plasma concentration of ivabradine, resulting in the visual side effects experienced.

Question:

A 28-year-old pregnant woman is seen at her booking appointment. Her obstetric history revealed she had pre-eclampsia in her last pregnancy. Which of the following medications should this patient be started on at 12-14 weeks gestation to reduce the risk of intrauterine growth retardation?

A.Low dose labetalol

B.Low dose methyldopa

C.Low molecular weight heparin

D.Low dose aspirin

E.Unfractionated heparin

Answer:Low dose aspirin

Explanation:

The following question tests the understanding of secondary prevention of women with pre-eclampsia. There is A level data showing that low-dose aspirin started at 12-14 weeks' gestation is more effective than placebo at reducing occurrence of pre-eclampsia in women at high risk, reducing perinatal mortality and reducing the risk of babies being born small for gestational age . There is some evidence that low molecular weight heparin might reduce the placental insufficiency seen in pre-eclampsia, but long-term safety studies are not yet available. Labetalol and methyldopa are both common antihypertensive drugs used in the acute management of pre-eclampsia, however are not given prophylactically and do not reduce intrauterine growth retardation. Similarly to LMWH, unfractionated heparin has not been proven to prevent the development uteroplacental insufficiency.

Question:

A 25-year-old woman presents to the emergency department following a low-impact car accident. She has some bruises and grazes but her trauma assessment reveals that she is well and uninjured.

The patient has had intermittent headaches over the last few months and states that she has not had a period for 6 months. She is trying for a child and has taken several pregnancy tests which were all negative. Her examination is unremarkable aside from poor peripheral vision bilaterally.

What is the likely cause of this woman's presentation?

A.Acute subdural haematoma

B.Posterior cerebral artery (PCA) stroke

C.Prolactinoma

D.Sarcoidosis

E.Somatroph pituitary adenoma

Answer:Prolactinoma

Explanation:

Headaches, amenorrhoea, visual field defects → ?prolactinoma

Important for meLess important

Prolactinoma is correct. This patient likely has a macroadenoma causing her compressive symptoms - headaches and bitemporal hemianopia. She also reports amenorrhea and problems with fertility which occur due to hyperprolactinaemia causing hypogonadism. The car accident likely occurred due to the visual field defects caused by the prolactinoma.

Acute subdural haematoma is incorrect as symptom onset usually occurs immediately or within a few days of the traumatic event. While headache can be a feature of this condition, this patient's headache is more of a chronic issue that preceded the car accident. Clinical features of acute subdural haematoma include impaired consciousness, confusion, focal neurological signs and manifestations of raised intracranial pressure (headache, vomiting, Cushing's triad). Acute subdural haematoma also does not account for her symptoms of hyperprolactinaemia.

PCA stroke is incorrect because it is unlikely given her age and the gradual onset of her symptoms. PCA is also classically associated with contralateral homonymous hemianopia with macular sparing, rather than bitemporal hemianopia.

Sarcoidosis is incorrect as granulomatous disease of the sellar region is uncommon relative to prolactinoma. It also does not account for the hyperprolactinaemia symptoms. Sarcoidosis is characterised by non-caseating granulomatous inflammation and most commonly affects the lungs. Sarcoidosis can affect other extrapulmonary structures such as the pituitary gland, where it can cause hypopituitarism (e.g. diabetes insipidus) or hyperpituitarism (e.g. hyperprolactinaemia).

Somatroph pituitary adenoma is a pituitary adenoma that secretes growth hormone. This causes a condition called acromegaly, characterised by skeletal effects (enlarged nose, forehead, jaw, hands and feet) as well as soft tissue effects (hyperhidrosis, deepening of the voice, macroglossia and obstructive sleep apnoea). While a somatroph pituitary adenoma may account for her compressive symptoms, she has no symptoms of acromegaly.

Question:

You are the foundation doctor covering surgery. You are asked to review a 77 year old patient (75kg) who is post right hemicolectomy for bowel cancer. The patient is hypotensive (87/40 mmHg), tachycardic (128 bpm) and has a urine output of 25 mls per hour . His only past medical history is hypertension. You conduct a fluid assessment. He appears dry with sunken eye balls and reduced skin turgor. You want to conduct a fluid challenge to assess his response. What is the most appropriate fluid to px?

A.1 Litre of gelofusin

B.1 Litres 0.9% normal saline over 8 hours

C.500 mls 0.9% normal saline STAT

D.500 mls 0.9% normal saline over 8 hours

E.250 mls 0.9% normal saline STAT

Answer:500 mls 0.9% normal saline STAT

Explanation:

In patients with no clinical signs or documentation of heart failure a 500 ml prescription of normal saline delivered STAT is the recommended fluid challenge. You must remember to reassess the patient to decide whether to prescribe another 500 mls.

250 mlx of 0.9% Normal Saline would be appropriate in patients with evidence of heart failure. This does not put as much strain on their physiology and risk the patient devoting worsening cardiac failure.

Review the NICE guidelines for further recommendations - https://www.nice.org.uk/guidance/cg174/chapter/1-Recommendations#resuscitation-2

Question:

A 70-year-old man is seen in the clinic with a red skin lesion on his right hand that has slowly been growing over the last year. He denies any itchiness, pain, or changes in sensation. His past medical history includes multiple sunburns throughout his lifetime, and he does not regularly use sunscreen.

On examination, a 10 mm erythematous, scaly patch is seen at the base of the thumb of the right hand. It is well-demarcated and there is no telangiectasia.

Given the likely diagnosis, what is the treatment of choice?

A.Photodynamic therapy

B.Radiotherapy

C.Surgical excision

D.Topical 5-fluorouracil

E.Topical corticosteroids

Answer:Topical 5-fluorouracil

Explanation:

Topical 5-fluorouracil is the treatment of choice for Bowen's disease

Important for meLess important

The presence of any skin lesion that is slowly growing on a sun-exposed site (such as the face, hands, or legs) should raise suspicion of either a malignant or pre-malignant skin condition. Red, scaly patches that grow on sun-exposed sites in older patients should raise suspicion of Bowen's disease, which is a precursor to squamous cell carcinoma (SCC). SCC differs in that it ulcerates, grows much faster (over weeks to months), and there may be areas of bleeding.

Topical 5-fluorouracil is correct as the first-line treatment of choice for Bowen's disease. It is a topical chemotherapy agent which allows for high concentrations of the agent at the site of the skin lesion without causing significant systemic effects. It often results in inflammation and erythema, and topical corticosteroids are often co-prescribed.

Photodynamic therapy (PDT) is incorrect as this does not play a role in the management of Bowen's disease. PDT is instead considered in actinic keratoses (AKs) if topical therapies are ineffective and cryosurgery is not feasible. AKs are different to Bowen's disease as they tend to be small, crusty lesions that may be pink, brown or the same colour as the skin, and often there are multiple lesions present.

Radiotherapy is incorrect as this is considered second-line therapy for Bowen's disease if topical 5-fluorouracil is inappropriate or ineffective and surgical excision is not feasible. There is nothing in this patient's history to suggest this would be the case.

Surgical excision is incorrect as this is considered if topical therapies such as topical 5-fluorouracil are ineffective. Using topical therapies first may be sufficient to eliminate the skin lesions without the risks associated with surgery, such as infection, bleeding, and cosmetic problems such as scarring. Since this patient has had no treatment yet, this step may not be necessary.

Topical corticosteroids is incorrect as this is not indicated in the treatment of Bowen's disease unless it is co-prescribed with topical 5-fluorouracil as mentioned above. Giving topical corticosteroids is likely going to mask the patient's symptoms, allowing Bowen's disease to progress into SCC, which can have worse outcomes.

Question:

A 23-year-old is admitted to the intensive care unit after suffering a traumatic head injury in a road traffic accident. The patient is agitated and hypoxic on arrival and so is intubated and ventilated. Further investigations show that this patient has a raised intracranial pressure.

What is the mechanism in which adjusting the ventilation rate would help this patient?

A.Hyperventilation -> reduce CO2 -> vasodilation of the cerebral arteries -> reduced ICP

B.Hyperventilation -> increase oxygen -> vasoconstriction of cerebral arteries -> reduced ICP

C.Hyperventilation -> increase CO2 -> vasodilation of the cerebral arteries -> reduced ICP

D.Hyperventilation -> reduce CO2 -> vasoconstriction of the cerebral arteries -> reduced ICP

E.Hypoventilation -> increase CO2 -> vasoconstriction of the cerebral arteries -> reduced ICP

Answer:Hyperventilation -> reduce CO2 -> vasoconstriction of the cerebral arteries -> reduced ICP

Explanation:

Controlled hyperventilation may be used in patients with raised ICP

Important for meLess important

The correct mechanism is related to hyperventilation, which results in increased CO2 expiration. The low blood CO2 levels subsequently causes cerebral arteries to constrict. As the cerebral arteries constrict, blood flow is reduced causing the volume inside the cranium to decrease, resulting in a lowered intracranial pressure.

Due to this mechanism, all of the other answers are incorrect.

Question:

Which one of the following causes of gastroenteritis has the longest incubation period?

A.Campylobacter

B.Bacillus cereus

C.Shigella

D.Giardiasis

E.Salmonella

Answer:Giardiasis

Explanation:

Question:

A 59-year-old diabetic man attends his GP with pain in his right ear. He has has the pain for the past 9 weeks but in the last three weeks he has also had some offensive discharge from the ear which is increasing. He has also been having headaches for the past few weeks which are present most of the day on the right side of his head and are not helped by over the counter analgesics.

On examination he is apyrexial, there is some creamy discharge from the opening of the right ear and on otoscopy there is slough and pus in the canal with erythema of the walls. The tympanic membrane is normal.

Which of the following antimicrobials will provide the best cover for the most likely causative agent of this gentleman’s condition?

A.Amoxicillin

B.Ciprofloxacin

C.Flucloxacillin

D.Nitrofurantoin

E.Metronidazole

Answer:Ciprofloxacin

Explanation:

Otitis externa in diabetics: treat with ciprofloxacin to cover Pseudomonas

Important for meLess important

This scenario is describing a patient with diabetes who has developed malignant otitis externa. The key features in the history to suggest this are the length of time, the presence of discharge, the associated headache and his history of diabetes. The normal tympanic membrane indicates this is not an otitis media. The cause of malignant otitis externa is a chronic Pseudomonas aeruginosa infection which becomes invasive and erodes the temporal bone. The most common patient group this occurs in is diabetics. Of the antibiotics suggested here, the one with the best activity against Pseudomonas is ciprofloxacin so this is the correct answer. Flucloxacillin would be the treatment of choice for uncomplicated otitis externa if a systemic therapy was warranted (so he had signs of systemic infection) and amoxicillin would be used in the case of otitis media.

In practice the main topical antibiotics used in otitis externa are ciprofloxacin and gentamicin, the latter would be contraindicated in tympanic membrane perforation as it is ototoxic. The choice between these is generally up to local antibiotic policy although ciprofloxacin is more commonly used as it is less toxic.

Question:

A 55-year-old woman presents to the Emergency Department with new back pain. She describes the pain radiating down the back of her left leg into her big toe and she has an associated weakness of her left leg which is stopping her from walking. She reports not having been able to pass urine all day despite feeling as though she needs to go.

On examination she has a 4/5 weakness of the right leg throughout and a 3/5 weakness of the left leg throughout. Her reflexes are absent on her left and reduced on her right. She has a loss of pin prick sensation throughout the L5, S1 and S2 dermatomes on the left as well as in her perineum. On digital rectal examination she has a loss of perianal sensation with normal anal tone but a reduced anal squeeze.

Given the suspected diagnosis, which of the following investigations is most appropriate?

A.Lumbar-sacral spine x-rays immediately

B.CT scan of the lumbar-sacral spine within 6 hours

C.MRI scan of the lumbar-sacral spine within 6 hours

D.CT scan of the lumbar-sacral spine within 72 hours

E.MRI scan of the lumbar-sacral spine within 72 hours

Answer:MRI scan of the lumbar-sacral spine within 6 hours

Explanation:

A patient with suspected cauda equina syndrome should have an urgent MRI spine

Important for meLess important

The features of back pain with concurrent leg pain and a new neurological deficit is highly suggestive of a spinal nerve impingement in the spine. Urinary symptoms and saddle anaesthesia with an abnormal rectal examination are highly suggestive of cauda equina syndrome. The complications of this are incontinence and paralysis of the lower limbs, which may become irreversible within hours of the onset of symptoms if untreated. Due to this, urgent imaging is required to confirm the diagnosis and the imaging of choice is an MRI of the lumbar-sacral spine as it is the only modality which can view soft tissues with enough detail to make the diagnosis. Plain x-rays should not be used as they do not provide any information regarding nerve injury and neither does CT scanning. In a perfect world the scan would happen immediately but the operational nature of an MRI scanner is such that a target of 6-hours is most achievable. Waiting 72-hours is unacceptable and can result in the patient becoming permanently paralysed or incontinent.

Question:

Lydia is a 26-year-old woman who has come to her GP complaining of low mood, sleep disturbance and headaches. She says the symptoms come on around the same time each month and seem to stop just before her period. In between episodes she feel fine but is concerned about how these symptoms are affecting her performance at work. She does not plan to have children for at least the next couple of years.

Given the likely diagnosis which treatment is appropriate for Lydia at this stage?

A.Copper intrauterine device

B.Drospirenone‐containing COC taken continuously

C.Progesterone only oral contraceptive taken cyclically

D.Sodium valproate

E.Tranexamic acid

Answer:Drospirenone‐containing COC taken continuously

Explanation:

Premenstrual syndrome: a new-generation combined oral contraceptive pill may be helpful

Important for meLess important

The likely diagnosis is premenstrual syndrome and appropriate treatments include combined oral contraceptive (often taken continually with no pill free break) and SSRIs. Patients should also be referred for CBT.

The copper intrauterine device is an effective long term contraceptive and is useful for emergency contraception. However it will not affect the hormonal changes that are causing Lydia's symptoms.

Drospirenone containing COC (combined oral contraceptive) is the most appropriate of the options listed. Lydia does not desire to have children in the immediate future and the hormonal nature of the contraceptive will hopefully alleviate her symptoms. Current guidance suggests that if taken continuously their beneficial effect on premenstrual syndrome is improved.

Progesterone only contraception is not recommended for premenstrual syndrome, it is newer generation combined oral contraceptives that are suggested for use in premenstrual syndrome.

Sodium valproate is an antiepileptic and has uses in psychiatric conditions. It is not a recognised treatment of PMS and certainly would not be considered at this stage.

Tranexamic acid is a drug used in massive haemorrhage and may be used in women with heavy periods. That is not the complaint here.

Question:

A 19-year-old man is admitted following a generalised seizure. No past history is available as the man is currently in a postictal state. On examination it is noted that he has three patches of hypopigmented skin and fibromata under two of his finger nails. What is the most likely diagnosis?

A.Neurofibromatosis

B.Lennox-Gastaut Syndrome

C.Multiple endocrine neoplasia type 1

D.Birt-Hogg-Dube syndrome

E.Tuberous sclerosis

Answer:Tuberous sclerosis

Explanation:

This man has a neurocutaneous syndrome which raises the possibility of neurofibromatosis or tuberous sclerosis. Given the areas of hypopigmentation and subungual fibromas the most likely diagnosis is tuberous sclerosis

Question:

A 58-year-old woman attends an appointment with the diabetes nurse after she was recently diagnosed with type 2 diabetes. Her recent HbA1c was 59 mmol/mol and a repeat test 2 weeks later was 61 mmol/mol. She has a history of stable angina and essential hypertension.

Her renal function was as follows:

eGFR 72 ml/min/1.73m² (>90 ml/min/1.73m²)

Urine albumin:creatinine ratio (ACR) 2.3 mg/mmol (<3 mg/mmol)

What is the most appropriate initial therapy for this patient?

A.Start an SGLT-2 inhibitor first, add metformin and titrate upwards as tolerated

B.Start both metformin and an SGLT-2 inhibitor immediately and titrate the metformin upwards as tolerated

C.Start metformin and titrate upwards as tolerated, add a DPP 4 inhibitor or pioglitazone or a sulfonylurea if adequate glycaemic control is not achieved

D.Start metformin first and titrate upwards as tolerated, add an SGLT-2 inhibitor if adequate glycaemic control is not achieved

E.Start metformin first and titrate upwards as tolerated, add an SGLT-2 inhibitor regardless of glycaemic control

Answer:Start metformin first and titrate upwards as tolerated, add an SGLT-2 inhibitor regardless of glycaemic control

Explanation:

If starting an SGLT-2 as initial therapy for T2DM then ensure metformin is titrated up first

Important for meLess important

The correct answer is start metformin first and titrate upwards as tolerated, add an SGLT-2 inhibitor regardless of glycaemic control. As the patient has a history of angina i.e. established cardiovascular disease (CVD), an SGLT-2 inhibitor should be started in addition to metformin. This is for organ protection rather than glycaemic control and so is indicated regardless of glycaemic control. Metformin should be started first and the SGLT-2 inhibitor added once metformin tolerability is confirmed.

Start an SGLT-2 inhibitor first, add metformin and titrate upwards as tolerated is incorrect. Metformin should be started first and the SGLT-2 inhibitor added once metformin tolerability is confirmed.

Start both metformin and an SGLT-2 inhibitor immediately and titrate the metformin upwards as tolerated is incorrect. Metformin should be started first and the SGLT-2 inhibitor added once metformin tolerability is confirmed.

Start metformin and titrate upwards as tolerated, add a DPP 4 inhibitor or pioglitazone or a sulfonylurea if adequate glycaemic control is not achieved is incorrect. Given the patient’s history of angina, an SGLT-2 inhibitor with proven cardiovascular benefit should be added in addition to metformin regardless of her glycaemic control.

Start metformin first and titrate upwards as tolerated, add an SGLT-2 inhibitor if adequate glycaemic control is not achieved is incorrect. Given the patient’s history of established CVD, the SGLT-2 is indicated for organ protection regardless of glycaemic control.

Question:

A 29-year-old woman with a history of intermittent episodes of limb weakness presents with symptoms of double vision, fatigue, and generalised aches and pains. On neurological examination, she has very brisk reflexes. Imaging of the brain and spine is ordered.

Which imaging modality is best for the above situation?

A.CT with contrast

B.CT without contrast

C.MRI with contrast

D.MRI without contrast

E.Ultrasound

Answer:MRI with contrast

Explanation:

MRI with contrast should be used to view demyelinating lesions

Important for meLess important

The concern in this patient is a demyelinating condition such as multiple sclerosis. MRI imaging, with contrast, of the brain and spine will demonstrate plaques representing areas of demyelination seen in multiple sclerosis, and this is therefore the correct answer.

Although CT scanning is useful for ruling out space occupying lesions, this is not the top differential here, and CT scanning will not reveal demyelinating lesions. It is therefore not the preferred option, and is of limited use in the diagnosis of multiple sclerosis.

MRI imaging without contrast is not adequate in viewing these demyelinating lesions. Recent studies have suggested it may be used in disease monitoring, but not for initial diagnosis.

Ultrasound is not indicated here, and will not be of any diagnostic use given that the skull will prevent ultrasound evaluation of the brain. Cranial ultrasounds are used in neonates via the fontanelle to assess for bleeds and hydrocephalus.

Question:

A 54-year-old gentleman with a background of chronic obstructive pulmonary disease (COPD), ulcerative colitis, hypertension and hypothyroidism attended your surgery for review. He has recently been discharged from hospital following an episode of pneumonia. From the discharge letter, you note that he developed an allergic reaction to co-trimoxazole during this admission. One of his regular medication was stopped as a consequence of this drug allergy and he has been advised to see the GP regarding this.

Which of the following medication was it likely to be?

A.Levothyroxine

B.Lisinopril

C.Sulfasalazine

D.Simvastatin

E.Azathioprine

Answer:Sulfasalazine

Explanation:

Patients with a documented allergy to a sulfa drug (i.e. co-trimoxazole) should not take sulfasalazine

Important for meLess important

Sulfasalazine is the correct answer. It is a sulfa drug and should be stopped in patients with a documented allergy to other sulfa drug, in this case, it is co-trimoxazole.

Question:

A 25-year-old woman presents with a slowly enlarging mass on the side of the face. Clinical examination demonstrates that the mass is located in the tail of the parotid gland. There is no evidence of facial nerve involvement. What is the most likely cause?

A.Sialolithiasis

B.Adenocarcinoma

C.Warthins tumour

D.Oncocytoma

E.Pleomorphic adenoma

Answer:Pleomorphic adenoma

Explanation:

Pleomorphic adenomas are the commonest tumours of the parotid gland and are often slow growing, smooth and mobile. Warthins tumours are typically found in elderly males and are composed of multiple cysts and solid components consisting of lymphoid tissue. Warthins tumours are most often found in the tail of the parotid gland, but not in 25 year old females, where a pleomorphic adenoma remains the most likely lesion.

Question:

A 72-year-old man presents to the emergency department with his husband with new onset symptoms. They were having dinner when the man started coughing and having trouble eating. He tried to get up, but he could not walk properly and he was feeling dizzy.

On examination, he has clear ataxia and he is feeling dizzy. Nystagmus is observable in both eyes. He has right-sided facial pain and temperature sensory loss and left-sided upper and lower limb pain and temperature sensory loss, with normal power bilaterally in all muscle groups.

Given the most likely diagnosis, where is the lesion?

A.Left anterior inferior cerebellar artery

B.Left midbrain branches of the posterior cerebral artery

C.Left posterior inferior cerebellar artery

D.Right anterior inferior cerebellar artery

E.Right posterior inferior cerebellar artery

Answer:Right posterior inferior cerebellar artery

Explanation:

Lateral medullary syndrome can be caused by PICA strokes

Important for meLess important

Right posterior inferior cerebellar artery is correct. This patient is presenting with features of lateral medullary syndrome, a neurological disorder causing a range of symptoms due to ischemia in the lateral part of the medulla oblongata in the brainstem. The features are usually ataxia, nystagmus, dysphagia, ipsilateral facial sensory loss and contralateral upper and lower limb sensory loss. Most commonly, this is caused by occlusion of the posterior inferior cerebellar artery.

It causes ipsilateral facial pain and temperature loss (due to damage to the trigeminal nucleus, and the fact that the fibres of the trigeminal nerve do not decussate), contralateral limb/torso pain and temperature loss (due to damage to the lateral spinothalamic tract, before it decussates), ataxia (due to damage to the inferior cerebellar peduncle), and nystagmus (due to damage to the vestibular nucleus). Hence, in this case, the damage occurred on the right side.

Left anterior inferior cerebellar artery is incorrect. Damage to this vessel can be easily confused with a left posterior inferior cerebellar artery stroke, as the symptoms are very similar. But in this case, the stroke would additionally cause ipsilateral facial muscle weakness, decreased lacrimation and salivation and loss of taste sensation from anterior ⅔ of the tongue, due to the damage to the facial nerve nuclei. These symptoms are not described in this case.

Left midbrain branches of the posterior cerebral artery is incorrect. Damage here would cause right-sided upper and lower limb weakness and left oculomotor palsy. In this case, the strength is preserved and there is no sign of oculomotor nerve palsy.

Left posterior inferior cerebellar artery is incorrect. Damage to this vessel would cause left facial pain and temperature loss (due to damage to the trigeminal nucleus, and the fact that the fibres of the trigeminal nerve do not decussate), right limb/torso pain and temperature loss (due to damage to the lateral spinothalamic tract, before it decussates), ataxia (due to damage to the inferior cerebellar peduncle), and nystagmus (due to damage to the vestibular nucleus). In this case, the sensory loss is inverted making the option incorrect.

Right anterior inferior cerebellar artery is incorrect. A stroke of this artery can be easily confused with a right posterior inferior cerebellar artery stroke, as the symptoms are very similar. But in this case, the stroke would additionally cause ipsilateral facial muscle weakness, decreased lacrimation and salivation and loss of taste sensation from anterior ⅔ of the tongue, due to the damage to the facial nerve nuclei. These symptoms are not described in this case.

Question:

A 75-year-old woman has acute-onset vision loss in her left eye. Over the last 2 weeks, she has had bilateral headaches with neck and shoulder stiffness and pain which was worst in the morning and improved throughout the day.

On examination, her strength and sensation are intact, and her shoulder and neck ranges of motion are limited due to discomfort. Vision in her left eye is reduced to hand movements only.

She has a past medical history of hypercholesterolaemia and myocardial infarction and she takes atorvastatin, aspirin, ramipril, and bisoprolol.

What would be the most likely finding on fundoscopy?

A.Cotton wool spots, hard exudates and blot haemorrhages

B.Elevated optic disc with blurred margins

C.Engorged pale optic disc with blurred margins

D.Retinal whitening and a cherry red spot

E.Tortuous arteries, flame haemorrhages, and papilloedema

Answer:Engorged pale optic disc with blurred margins

Explanation:

Anterior ischemic optic neuropathy - fundoscopy typically shows a swollen pale disc and blurred margins

Important for meLess important

Engorged pale optic disc with blurred margins is correct. Given this patient's age, female sex, and the preceding proximal muscle pain and stiffness that is worse in the morning and improves throughout the day is highly suggestive of polymyalgia rheumatica (PMR), and the current bilateral headaches and vision loss are suggestive of giant cell arteritis (GCA), a complication strongly associated with PMR.

GCA can lead to vision loss and this is due to anterior ischaemic optic neuropathy. This is thought to be due to the immune system damaging arteries supplying the optic nerve, leading to thrombus formation and occlusion, leading to the death of nerve fibres at the anterior aspect of the optic nerve. The ischaemia in the optic nerve leads to optic disc pallor and swelling.

Cotton wool spots, hard exudates and blot haemorrhages is incorrect. This would be seen in diabetic retinopathy. This patient does not have diabetes mellitus, and it would be unlikely for her to present this late without noticing vision problems in the past. From the stem, it can be seen that GCA has caused vision loss, which does not have these findings.

Retinal whitening and a cherry red spot is incorrect. This describes central retinal artery occlusion (CRAO), which presents as a sudden-onset painless visual loss. Although this patient has risk factors for the development of CRAO, her current episode of vision loss was not painful and it can be seen that GCA has caused vision loss, which does not have these findings.

Tortuous arteries, flame haemorrhages, and papilloedema is incorrect. This describes stage IV hypertensive retinopathy. This patient does not have a history of hypertension (she is taking the ramipril for her myocardial infarction), and it would be unlikely for her to present this late without noticing vision problems in the past. From the stem, it can be seen that GCA has caused vision loss, which does not have these findings.

Elevated optic disc with blurred margins is incorrect. This describes papilloedema, which is different to anterior ischaemic optic neuropathy (AION). Papilloedema by definition is swelling and elevation of the optic disc with blurred margins solely due to elevated intracranial pressure (ICP), and AION does not fit this definition. The elevated ICP can be thought of as exerting pressure on the back of the eyes, leading to an elevated optic disc and resultant blurring of its margins. As well as this, there is no pallor, which is a feature seen in AION representing ischaemia. This patient does not have associated features of raised ICP such as nausea, vomiting, and fluctuating consciousness.

Question:

A 46-year-old man is brought in by ambulance after having fallen off a 6-foot ladder and hit his head. He has sustained a deep laceration to the lateral right knee and is being kept overnight for observations. An x-ray of the right leg shows no fractures. He has a past medical history of hypercholesterolemia.

Overnight, he is noted to be using the maximum dose of prescribed PRN morphine due to pain in his right leg. The doctor is called to review the patient and on examination, there is reduced sensation on the medial aspect of the plantar right foot.

What is the most likely diagnosis?

A.Acute limb ischaemia

B.Common peroneal nerve injury

C.Compartment syndrome

D.Posttraumatic osteomyelitis

E.Saphenous nerve injury

Answer:Compartment syndrome

Explanation:

Excessive use of breakthrough analgesia should raise suspicion for compartment syndrome

Important for meLess important

Compartment syndrome is the correct answer. The history of trauma followed by lower limb pain should quickly raise suspicion of compartment syndrome. The increasing pressure in the compartment from oedema and blood results in venous compression. This increases the hydrostatic pressure which compromises the transferring nerves. In this case, the medial plantar nerve has been compromised, as seen by the reduced sensation in the medial aspect of the plantar foot resulting in the distribution of paresthesia. The patient is using the maximum dose of PRN morphine, which should raise clinical suspicion of compartment syndrome as this can be extremely painful. Pallor is a late sign as arteries have the highest pressure, so they become occluded last (after 4-6 hours from paraesthesia onset). Often, x-rays have no findings in the context of compartment syndrome; hence it is normal in this case.

Acute limb ischaemia is incorrect. The usual presenting complaint for acute limb ischaemia is pain with associated pallor from reduced arterial perfusion. On examination, there is no pallor in this patient. Whilst the past medical history of hypercholesterolemia support this diagnosis, you would expect to see paraesthesia in acute limb ischaemia starting in the toes and spreading proximally. It would be unusual to be in such a small distribution as seen in this man (medial plantar right foot).

Common peroneal nerve injury is incorrect. This nerve passes around the lateral knee (fibular head) and can be damaged in surgeries around the fibular head and knee or injuries. In this scenario, the medial plantar nerve has been compromised, as seen by the reduced sensation in the medial aspect of the plantar foot. This is a branch of the tibial nerve as opposed to the common peroneal nerve, which supplies the dorsum and lateral aspects of the foot.

Posttraumatic osteomyelitis is incorrect. This typical presents more than 48 hours after the trauma. An infection requires time to develop, whereas this man only acquired his injury 24 hours previously. The tibial is the most common site of posttraumatic osteomyelitis and would present with pain uncontrolled by analgesia. It does not explain the loss of sensation in the medial aspect of the plantar foot.

Saphenous nerve injury is incorrect. This supplies innervation to a small portion of the arch of the foot; it does not stretch round to the plantar portion of the foot. Furthermore, the saphenous nerve travels down the medial knee, making it unlikely to be injured during a fall onto the lateral side of the leg.

Question:

A 23-year-old man presents to his general practitioner with a painful and swollen left testis for 1 week. He is sexually active and has had multiple sexual partners of both genders in the past year. On examination, the left testis is tender on palpation and swollen, but he is apyrexial. Urethral swabs are taken.

What is the most likely causative organism?

A.Mumps

B.Chlamydia trachomatis

C.E. coli

D.Neisseria gonorrhoea

E.Syphilis

Answer:Chlamydia trachomatis

Explanation:

Acute epididymo-orchitis in sexually active younger adults is most commonly caused by Chlamydia

Important for meLess important

Chlamydia trachomatis is correct. This patient is presenting with symptoms and signs of epididymo-orchitis. The main differential to consider is testicular torsion, especially in males younger than 20 years old. The timing is also more consistent with epididymo-orchitis. The most common organism in this age group is chlamydia.

Mumps is an alternative important cause of epididymo-orchitis, however, it is not as common as chlamydia and the absence of other symptoms such as neck swelling and fever point away from this diagnosis.

E. coli is the most common cause of epididymo-orchitis in men over 35 years of age. Here it's most likely to be chlamydia, given the age of the patient and his sexual history.

Neisseria gonorrhoea is the 2nd most common cause in this age group.

Syphilis is a rarer cause of epididymo-orchitis.

Question:

A 65-year-old man presents to his GP with a 3-week history of visible haematuria. He reports that his urine is a red colour but he has never seen any clots and he has also felt under the weather for the past few months with ongoing fevers and 12kg of weight loss. He denies dysuria, altered frequency, hesitancy, or changes in the smell of his urine.

On examination, he is mildly tender on his right flank and there is a palpable abdominal mass. The GP notes a right-sided testicular swelling that has a 'bag of worms' texture.

What is the most likely diagnosis?

A.Prostate malignancy

B.Renal cell carcinoma

C.Seminoma

D.Transitional cell carcinoma of the bladder

E.Urinary tract infection

Answer:Renal cell carcinoma

Explanation:

Urgent 2 week wait referral is needed for unexplained visible haematuria without UTI

Important for meLess important

Renal cell carcinoma is the most likely diagnosis as it best fits the constellation of this patients symptoms. The classic triad of renal cell carcinoma is flank pain, flank mass and haematuria; however, this is only present in roughly 10-15% of patients and often suggests advanced disease. The testicular mass in this patient represents a varicocele which, while not uncommon in the healthy male population, may be associated with a renal cell carcinoma. If a varicocele is discovered, it is a potential indication for renal USS.

Prostate malignancy may also cause haematuria and systemic symptoms however it is unusual for there to be an abdominal mass (outside of metastasis). There may also be symptoms such as hesitancy and frequency.

Seminoma - in rare occasions a patient may have haematuria with testicular malignancy, but this is not a common presentation. Most people present with non-painful testicular enlargement or change in shape/texture of the body of the testis.

Transitional cell carcinoma of the bladder most commonly presents as painless haematuria. Depending on the location of the tumour within the bladder and its size, the patient may have other symptoms such as flank pain (if hydronephrosis from ureteral obstruction at the level of the vesicoureteric junction) or bladder outlet obstruction and urinary retention (if near the urethral orifice). Fevers are not common.

Urinary tract infection would typically present with painful haematuria and other urinary tract symptoms (such as increased frequency, changes in smell, etc.). The patient may be feverish with a UTI, but weight loss and such long-lasting fevers point away from this diagnosis.

Question:

A 14-year-old boy is admitted to the paediatric ward for further investigation of recurrent episodes of arthralgia, affecting multiple sites. Physical examination revealed swelling and tenderness of the right ankle joint and, tenderness on motion and pain over the bilateral wrist and left sacroiliac joints. Two months ago, he presented to his GP with vomiting, diarrhoea and fever for which he received supportive treatment. The ankle joint is aspirated and analysis of the synovial fluid reveals a high white cell count and no organisms present in the culture.

What is the most likely diagnosis?

A.Behcet's disease

B.Reactive arthritis

C.Septic arthritis

D.Systemic juvenile idiopathic arthritis

E.Systemic lupus erythematous

Answer:Reactive arthritis

Explanation:

Reactive arthritis: develops after an infection where the organism cannot be recovered from the joint

Important for meLess important

The likely diagnosis, in this case, is reactive arthritis. Reactive arthritis is a sterile arthritis triggered by distant gastrointestinal or urogenital infections. This usually presents with the triad of polyarticular arthralgia, urethritis and uveitis. Most cases occur in people who are positive for the HLA-B27 gene. The most common precipitating infections are those caused by Salmonella, Shigella, Yersinia, and Campylobacter organisms.

Bechet's disease may present with the classic triad of oral ulcers, genital ulcers and uveitis. As there is no mention of ulcers or visual symptoms, Bechet's disease is unlikely to be the diagnosis.

Septic arthritis is a cause of joint swelling and should be considered in any acutely painful joint. However, it is unlikely to affect several joints and may present with other signs such as fever and the inability to weight bear. Furthermore, an organism may be cultured in a joint aspiration of a joint affected by septic arthritis. The Kocher criteria can be used to determine the probability of septic arthritis, this is a four-part criterion including a high white cell count >12,000 cells/mm³), high ESR (>40mm/hr), the inability to weight bear and the presence of a temperature above 38.5ºC.

Systemic juvenile idiopathic arthritis usually has a more gradual onset, with morning stiffness and spiking fevers. There may also be a history of school absences or avoidance of physical activities. A flat, pale pink rash may appear.

Systemic lupus erythematosus (SLE) is an autoimmune disorder, usually following a relapsing-remitting course. It most frequently occurs in women of childbearing age. There are many potential signs and symptoms of SLE, however, a classic triad of fever, joint pain and a rash in a woman of childbearing age should prompt further investigation.

Question:

A 31-year-old woman presents with a one-day history of a unilateral painful eye. She reports pain on eye movements.

She has no past medical history, however, she was recently treated for a urinary tract infection two weeks ago. She does not take any regular medication apart from ibuprofen which helps with joint pain in her hands in the morning.

On examination, her right eye is watery, and mild photophobia is present. Both pupils are equal and reactive to light. There is no reduced visual acuity.

What is the most likely diagnosis?

A.Acute angle closure glaucoma

B.Anterior uveitis

C.Conjunctivitis

D.Episcleritis

E.Scleritis

Answer:Scleritis

Explanation:

The image shows conjunctival injection. There does not appear to be any haemorrhages nor watering of the eye or lesions around the eye such as a chalazion. Although the patient is looking to the side, there is no obvious sign of a small pupil, however, this will need to be compared with the patient's other eye.

Scleritis is correct. This is caused by inflammation of the sclera, and it is associated with inflammatory or autoimmune diseases such as sarcoidosis and systemic lupus erythematosus (SLE). The patient in this scenario has been experiencing chronic pain in her hand joints worse in the mornings which improves with the use of non-steroidal anti-inflammatory drugs (NSAIDs) which could be undiagnosed rheumatoid arthritis. Patients often present with a red, painful eye that is worse with eye movements, eye-watering, photophobia and a gradual reduction in vision. It is treated with the use of NSAIDs, or if the case is more severe then glucocorticoids may be prescribed. Patients should be urgently reviewed by an ophthalmologist.

Acute angle closure glaucoma is incorrect. This condition commonly presents with red eye, eye pain or brow pain, headache, nausea and vomiting, as well as seeing halos around lights. On examination, patients may have a fixed dilated pupil. Acute angle closure glaucoma is caused by raised intra-ocular pressure. This patient has presented with a red eye and pain, however, she does not have any other symptoms that suggest acute angle close glaucoma, nor is a fixed dilated pupil seen.

Anterior uveitis is incorrect. It is caused by the inflammation of the uvea which is made up of the iris and ciliary body. It causes a red, painful eye, and may also present with photophobia. However, it can cause a small, fixed pupil, as well as blurred vision. Therefore, scleritis is more likely in this scenario.

Conjunctivitis is incorrect. Although conjunctival injection (red eye) is commonly seen with conjunctivitis, accompanying symptoms such as itchiness and watering or discharge of the eyes are seen. Furthermore, patients characteristically complain of their eyelids being 'stuck together'. The patient would also not be having pain in the eye nor pain on eye movements.

Episcleritis is incorrect. This involved inflammation of the episclera. It has a similar presentation to scleritis. However, it does not usually cause pain. Therefore, in this scenario scleritis is more likely.

Question:

Which one of the following ECG changes is associated with Wolff-Parkinson White syndrome?

A.Long QT

B.P wave inversion

C.'J' waves

D.Hyperacute T waves

E.Short PR interval

Answer:Short PR interval

Explanation:

Question:

A 65-year-old male undergoes a Hartmann's procedure for a sigmoid cancer. On day 2 post-op, nurses are concerned as his colostomy has not passed any wind or stool yet and he is complaining of increasing bloatedness. You review the patient and witness him vomit profusely.

How would you manage this common post-operative complication?

A.Prescribe regular anti-emetics

B.Encourage light diet as tolerated

C.Give stimulant and osmotic laxatives

D.Place the patient nil by mouth and insert a nasogastric tube

E.Discuss with the surgical registrar to take the patient back to theatre

Answer:Place the patient nil by mouth and insert a nasogastric tube

Explanation:

Post-operative ileus is a common complication in colorectal surgery due to intra-operative bowel handling. Management is conservative with nasogastric tube insertion for stomach decompression for symptom control and placing the patient nil by mouth to allow bowel rest. The recommencement of fluids/light diet should be in stages and guided by the clinical state of the patient.

Question:

A 23-year-old woman who is 28 weeks pregnant attends the joint antenatal and diabetes clinic, for a review of her gestational diabetes.

She was found to have gestational diabetes at 24 weeks gestation after glucose was found on a routine urine dipstick. She had 2 week trial of lifestyle modifications, which did not lead to any improvement. After this, she was then started on metformin for the past 2 weeks, which has equally not improved her daily glucose measurements.

On examination, her symphysio-fundal height is 28 cm and foetal heart rate is present.

What is the most appropriate next step in her management?

A.Prescribe glibenclamide

B.Prescribe gliclazide

C.Prescribe gliclazide and glibenclamide

D.Prescribe short-acting and long-acting insulin

E.Prescribe short-acting insulin only

Answer:Prescribe short-acting insulin only

Explanation:

Gestational diabetes is treated with short-acting, but not longer-acting SC insulin

Important for meLess important

This woman has been trialled on both lifestyle modifications for 2 weeks, and then metformin for 2 weeks, and neither of these has led to improvement of her gestational diabetes. The next step in her treatment should be to offer short-acting insulin, alongside education on how to dose insulin in accordance with meals.

Glibenclamide is an oral hypoglycaemic agent which is a second-generation sulfonylurea. It decreases blood glucose by increasing insulin secretion. It may be associated with increased birth weight, macrosomia, and neonatal hypoglycemia when compared with insulin. For that reason, it is only given if insulin fails to offer adequate glycaemic control, or if insulin is refused or contraindicated. Therefore, in this scenario, it is not the correct answer.

Gliclazide is an oral hypoglycaemic agent which is not recommended for use in pregnancy. It is unsure or not whether it may cross the placenta, and there is a risk of neonatal hypoglycemia. Therefore, it is not the correct answer.

Gliclazide and glibenclamide together is not the correct answer. Gliclazide is not recommended in pregnancy, and glibenclamide should only be offered as the next step after insulin management has failed. Both of these drugs together may also precipitate maternal hypoglycaemia.

Prescribing short-acting and long-acting insulin is not the correct answer. Long-acting insulin is not preferred in pregnancy as it may be associated with adverse birth outcomes. Equally, it may lead to maternal hypoglycaemia. Short-acting alone gives better post-prandial glucose control and is more flexible in terms of responding to the different day-to-day diets of a pregnant woman.

Question:

A 67-year-old man who has a history of type 2 diabetes mellitus and benign prostatic hyperplasia presents with burning pain in his feet. This has been present for the past few months and is getting gradually worse. He has tried taking duloxetine but unfortunately has received no benefit. Clinical examination is unremarkable other than diminished sensation to fine touch on both soles. What is the most suitable initial management?

A.Carbamazepine

B.Amitriptyline

C.Pregabalin

D.Fluoxetine

E.Sodium valproate

Answer:Pregabalin

Explanation:

Amitriptyline would normally be first choice but given his history of benign prostatic hyperplasia it is better to avoid amitriptyline due to the risk of urinary retention.

Question:

A 28-year-old woman is attending her annual asthma review. She is currently prescribed a salbutamol inhaler 100µg and budesonide 400µg. Her asthma is well controlled and she hasn't needed to use her 'blue inhaler' over the past year. She is currently trying for a baby and is concerned about taking her asthma medications during pregnancy.

What is the most appropriate change to her medications?

A.Add leukotriene receptor antagonist

B.Reduce budesonide dose

C.Reduce salbutamol dose

D.Stop budesonide

E.Stop salbutamol

Answer:Reduce budesonide dose

Explanation:

In the step-down treatment of asthma, aim for a reduction of 25-50% in the dose of inhaled corticosteroids

Important for meLess important

Reduce budesonide dose. This is correct. If asthma is well controlled, a reduction in the patient's medication should be considered. She has not used her blue inhaler (salbutamol/SABA) for one year, so has not had any symptoms or exacerbations. This indicates her asthma is well controlled.

Patients are unlikely to remember the exact names of their medications, particularly inhalers, and often refer to the colours. It is helpful to remember the distinction: blue inhaler = SABA, brown inhaler = ICS.

Add leukotriene receptor antagonist. This is incorrect. Her asthma is well controlled. She has not used her blue inhaler (salbutamol/SABA) for one year, so has not had any symptoms or exacerbations. There is no need to progress to the next step of asthma management.

Reduce salbutamol dose. This is incorrect. This is a reliever medication for use during symptoms or an exacerbation. All patients with asthma are given a SABA as step 1 of management. ICS is step 2 and should be reduced first. In addition, 100mcg is the lowest dose for a salbutamol inhaler.

Stop budesonide. This is incorrect. ICS should be reduced in dosage as part of the step-down treatment instead of suddenly stopping. Furthermore, NICE recommend maintaining good control of asthma throughout pregnancy so it is not necessary to stop any of her medications for this reason.

Stop salbutamol. This is incorrect. Salbutamol is a reliever and is needed in case of an exacerbation or any symptoms. It should not be stopped in any asthmatic patients.

Question:

An 18-year-old boy presented with sudden onset acute pain in the right hip for 9-days. The pain, associated with high-grade fever with chills, was non-radiating, severe in intensity and aggravated by movements at the hip, and was only partly relieved with analgesia. The fever was remittent and was relieved with paracetamol but only to reoccur. He denies any history of trauma.

What is the key investigation in this case given the likely diagnosis?

A.Blood culture

B.Bone scan

C.CT right hip

D.Right hip x-ray

E.Synovial fluid analysis

Answer:Synovial fluid analysis

Explanation:

Synovial fluid sampling is the key investigation in patients with suspected septic arthritis

Important for meLess important

Septic arthritis is an inflammatory joint condition secondary to joint inoculation with infectious microorganisms.

Synovial fluid analysis is the key investigation in patients with suspected septic arthritis that includes culture and is the cornerstone of diagnosis and should be performed prior to antibiotic therapy being administered. It enables the diagnoses of both sepsis and crystal-induced arthritis to be confirmed quickly and therefore is the correct answer.

Right hip x-ray is unlikely to be useful in the acute stage of septic arthritis as it is likely to remain normal. It may show a narrowing of the joint space due to cartilage destruction or joint effusion. Therefore it is considered a key investigation.

CT right hip similarly shows features found on radiographs however a fat-fluid level can be a specific sign in the absence of trauma.

Bone scans perform well for distinguishing sepsis from osteoarthrosis, but cannot distinguish effectively between sepsis and other causes of joint inflammation making its value limited in this case.

Blood cultures may help to identify the causative organism in cases where synovial fluid culture remains unrewarding. Whilst taking blood cultures is a necessary part of the septic screen, synovial fluid analysis remains fundamental.

Question:

A 28-year-old woman is 30 weeks into her first pregnancy. She is found to have a blood pressure of 162/110 mmHg and a urine dipstick shows protein +++. She also has marked oedema of her ankles but feels well in herself. What is the first line therapy to manage her high blood pressure?

A.Immediate delivery

B.Delivery following a course of corticosteroids

C.Labetalol

D.Intravenous magnesium sulphate

E.Furosemide

Answer:Labetalol

Explanation:

This patient is suffering from pre-eclampsia. The National Institute for Health and Care Excellence state that women with severe hypertension in pregnancy (160/110mmHg or higher) should be treated with labetalol as first time treatment. Delivery should not be offered to women before 34 weeks unless:

severe hypertension remains refractory to treatment

maternal or fetal indications develop as specified in the consultant plan

At 34 weeks delivery should be offered to women with pre-eclampsia once a course of corticosteroids has been completed.

Intravenous magnesium sulphate can be used in the critical care setting when a woman who has severe hypertension or severe pre-eclampsia has previously had an eclamptic fit. It is not used to solely lower blood pressure.

Frusemide should not be used to treat hypertension in pregnancy because placental perfusion may be reduced and it crosses the placental barrier.

Reference:

NICE: Hypertension in pregnancy: The management of hypertensive disorders during pregnancy. https://www.nice.org.uk/guidance/cg107/chapter/1-Guidance#medical-management-of-severe-hypertension-or-severe-pre-eclampsia-in-a-critical-care-setting

Question:

A 67-year-old man presents to the emergency department with 'flutters in his chest' for the past 36 hours. He is confident as to when his symptoms began. He states that he has had 2 non-ST-elevation myocardial infarctions in the past. He suffers from hypertension which is controlled with perindopril monotherapy, and hypercholesterolaemia treated with atorvastatin. He has no other relevant past medical history.

On examination, the patient is alert and oriented. His blood pressure is 135/90mmHg, heart rate is 112 beats per minute, temperature is 37.3ºC and respiratory rate is 16 breaths per minute.

An ECG displays an irregularly irregular rhythm. A discussion is had with the patient, and he agrees on the suggested management plan.

Based on his presentation, which management plan is most likely to be started in this patient?

A.Begin amiodarone oral therapy, and continue as an outpatient

B.Begin anticoagulation, undergo immediate direct current (DC) cardioversion

C.Begin anticoagulation, discharge and return in 3 weeks for definitive management

D.Discharge home and follow up with his GP for ongoing management

E.Intravenous amiodarone loading dose, followed by an amiodarone infusion

Answer:Begin anticoagulation, undergo immediate direct current (DC) cardioversion

Explanation:

New onset AF is considered for electrical cardioversion if it presents within 48 hours of presentation

Important for meLess important

This patient is presenting with new-onset atrial fibrillation (AF). Management of AF depends on the duration of symptoms, recurrence of symptoms (new-onset vs existing AF diagnosis) and risk stratification.

Symptoms present for <48 hours can undergo cardioversion with a low risk of embolic disease, however, anticoagulation should still be started prior to this. A rapid onset anticoagulant such as heparin is recommended, as it can be easily ceased if and when sinus rhythm is restored. NICE guidelines recommend electrical cardioversion where possible, especially in patients with structural heart disease as present in this patient.

If symptoms have been present for greater than 48 hours, this increases the risk of an atrial thrombus, which may dislodge and cause thromboembolic disease such as a stroke, if cardioversion is attempted without anticoagulation. In these cases, either obtain a transoesophageal echocardiogram (TOE) to exclude a thrombus before cardioversion or start the patient on anticoagulation for 3 weeks prior to cardioversion to minimise embolic risk.

Amiodarone oral therapy is inadequate therapy for cardioversion in acute AF.

Cardioversion in 3 weeks would be an appropriate management plan if symptoms were present for >48 hours or an unknown duration, as this period is necessary to ensure sufficient anticoagulation to minimise the risk of a left atrial thrombus. Starting a direct oral anticoagulant (DOAC) such as apixaban or rivaroxaban would be appropriate.

Discharge home would be appropriate for patients with chronic AF, or after cardioversion.

Pharmacological cardioversion with intravenous amiodarone is a potential option for cardioversion, however, electrical cardioversion is preferred according to NICE guidelines - especially in patients with structural heart disease.

Question:

A 25-year-old woman presents with a one week history of fatigue, fever and sharp right sided chest pain, which is worse on inspiration. She also complains of intermittent join pain in her hands which has been present for approximately 4 months. On examination there is mild erythema over her cheeks.

Which of the following investigations is the most sensitive for this condition?

A.ANA

B.c-ANCA

C.Anti-dsDNA

D.Antistreptolysin O titre

E.Rheumatoid factor

Answer:ANA

Explanation:

Over 99% of patients with SLE are ANA positive, therefore it is a useful rule out test

Important for meLess important

This presentation is concerning for systemic lupus erythematosus (SLE), a chronic inflammatory disease. Antinuclear antibodies (ANA) have are found in almost all patients with SLE, but also in many other autoimmune conditions. ANA is highly sensitive but has low specificity to SLE.

c-ANCA are found in patients with granulomatosis with polyangiitis.

Anti-dsDNA are highly specific for SLE but only approximately 60% with have raised titre levels.

Antristreptolysin O titres may be raised in patients with a recent streptococcal infection and other conditions including rheumatic fever.

Rheumatoid factor is normally associated with rheumatoid arthritis. It can be raised in other conditions including SLE but it is non specific.

Question:

A 55-year-old man presents to the emergency department with acute abdominal pain. There is no history of loose stools, constipation, nausea or vomiting.

His temperature is 37.6ºC, his heart rate is 115 bpm, and his blood pressure is 145/75 mmHg. On examination, there is epigastric pain radiating to the right shoulder and back, and shifting dullness is present.

Investigations are performed:

Hb 140 g/L (135-180)

Platelets 300 \* 109/L (150 - 400)

WBC 11.3 \* 109/L (4.0 - 11.0)

Lipase 200 U/L (13 - 60)

Bilirubin 18 µmol/L (3 - 17)

ALP 106 u/L (30 - 100)

ALT 32 u/L (3 - 40)

Given the likely diagnosis, what is the next most appropriate step in his management?

A.Consider nasogastric tube and keep nil-by mouth

B.Consider percutaneous endoscopic gastrostomy (PEG) tube and keep nil-by mouth

C.Encourage nutrition orally as tolerated and do not keep nil-by mouth

D.Keep nil-by-mouth and give IV fluids where necessary

E.Start total parenteral nutrition (TPN) and keep nil-by mouth

Answer:Encourage nutrition orally as tolerated and do not keep nil-by mouth

Explanation:

Enteral nutrition should be offered to anyone with moderately severe or severe acute pancreatitis

Important for meLess important

Encourage nutrition orally as tolerated and do not keep nil-by mouth is the correct answer. The patient in the vignette has features of pancreatitis (epigastric pain radiating to the back and right upper quadrant, serum lipase elevated 3x the upper limit of normal). In many cases of pancreatitis, slight elevations in bilirubin and ALP may be seen. The patient in the vignette has developed an acute local complication (ascites), indicating that they have moderate-severe pancreatitis. In all patients with pancreatitis, patients should not routinely be made nil-by-mouth unless there is an obvious reason, such as vomiting.

Enteral feeding is any form of feeding, including via a tube, to the stomach and is used when the gut is functioning. It is thought to protect the gut-mucosal barrier by continually moving bacteria through the gastrointestinal tract, reducing the risk of pancreatic tissue infection.

Consider nasogastric tube and keep nil-by mouth is incorrect. Although a nasogastric tube is a form of enteral feeding, patients should not be made nil-by-mouth unless there is an obvious reason, such as vomiting. The patient in the vignette is not vomiting, and there is no evidence he cannot intake food orally; therefore, continued oral intake should be encouraged. Inserting a nasogastric tube has risks (e.g. incorrect insertion) and can be uncomfortable.

Consider percutaneous endoscopic gastrostomy (PEG) tube and keep nil-by mouth is incorrect. Although a PEG tube is a form of enteral feeding, patients should not be made nil-by-mouth unless there is an obvious reason, such as vomiting. The patient in the vignette is not vomiting, and there is no evidence he cannot intake food orally; therefore, continued oral intake should be encouraged. A PEG tube is relatively invasive and carries unnecessary risks such as bleeding, infection, and failure requiring re-insertion.

Keep nil-by-mouth and give IV fluids where necessary is incorrect. Although fluids should be given to avoid dehydration, this patient has no reason to be kept nil-by-mouth. Allowing the patient to eat and drink orally (provided there are no contraindications such as nausea or vomiting) is associated with a better prognosis for pancreatitis.

Start total parenteral nutrition (TPN) and keep nil-by mouth is incorrect. TPN is a form of parenteral nutrition and is considered in cases where the gut is not effectively functioning. Parenteral nutrition should be considered if enteral nutrition has failed or is contraindicated. Given that this patient is not vomiting, enteral nutrition (in the form of normal oral intake) should be attempted first.

Question:

A 50-year-old diabetic right-handed lady presents with left shoulder pain. She describes a stiff shoulder often more painful at night and has difficulty dressing or doing up her bra. On examination, there is no point tenderness and you notice weakness in external rotation.

What is the most likely cause of her shoulder pain?

A.Acromioclavicular degeneration

B.Subacromial impingement

C.Rotator cuff tear

D.Calcific tendinopathy

E.Adhesive capsulitis

Answer:Adhesive capsulitis

Explanation:

External rotation (on both active and passive movement) is classically impaired in adhesive capsulitis

Important for meLess important

Adhesive capsulitis presents as a painful stiff shoulder with restriction of active and passive range of motion in abduction, internal and external rotation. However external rotation often shows the most marked restriction and is the first movement to show impairment. The stem describes difficulty dressing and doing up her bra as well as weakness of external rotation suggesting a globally impaired range of motion. Patients often report difficulty sleeping on the affected side. Other indications that the answer is adhesive capsulitis, include coexisting diabetes, female gender and symptoms in the non-dominant hand, all of which are common findings in this condition

Acromioclavicular degeneration is often associated with popping, swelling, clicking or grindings and a positive scarf test not reported in the stem

Subacromial impingement patients often complain of pain on overhead activities and demonstrate a painful arc of abduction on examination - worse between 90 and 120 degrees. There may also be popping, snapping or grinding.

Rotator cuff tears can occur either due to specific trauma or chronic impingement. Patients will normally describe weakness as well as pain and there may be muscle wasting and tenderness on palpation. There may be a painful arc of movement and weakness of the affected muscle.

Patients with calcific tendinopathy would normally have tenderness on palpation of the affected area and be reluctant to move the arm. There may be overlap with symptoms of impingement syndrome making this a less likely answer.

Question:

A 30-year-old man attends his friend's stag do where they go to eat at an 'all you can eat' buffet. Seven plates in, he finally feels satiated and they eventually head over to the local casino.

Two hours after finishing the meal, he is at a poker tournament. He suddenly feels unwell and begins to profusely vomit all over the table.

He goes home and through the night the vomiting subsides. The next day he is feeling better, grateful he did not have diarrhoea.

What is the most likely causative organism?

A.Escherichia coli

B.Giardia

C.Salmonella

D.Shigella

E.Staphylococcus aureus

Answer:Staphylococcus aureus

Explanation:

Staphylococcus aureus gastroenteritis is characterised by a short incubation period and severe vomiting

Important for meLess important

Staphylococcus aureus is the correct answer. The associated gastroenteritis typically involves severe vomiting after a short incubation period of 30 minutes to 8 hours. The symptoms usually resolve within two days.

Escherichia coli is incorrect. Escherichia coli gastroenteritis typically has an incubation period of 3-4 days and causes diarrhoea that usually becomes bloody, lasting up to a week.

Giardia is incorrect. Giardia causes giardiasis which is characterised by watery diarrhoea at least 5 days after infection.

Salmonella is incorrect. Salmonella gastroenteritis is characterised by diarrhoea and fever; symptoms usually occur between 6 hours and 6 days after infection.

Shigella is incorrect. Shigella causes shigellosis infection, which usually begins 1-2 days after infection and causes fever alongside diarrhoea which is sometimes bloody.

Question:

Which one of the following is not an indication for circumcision?

A.Phimosis

B.Paraphimosis

C.Recurrent balanitis

D.Balanitis xerotica obliterans

E.Peyronie's disease

Answer:Peyronie's disease

Explanation:

Question:

A 74-year-old man presents to his GP for a medication review. Blood pressure is recorded as 184/72. This is confirmed on two further occasions. What is the most appropriate first line therapy?

A.Ramipril

B.Losartan

C.Bendroflumethiazide

D.Amlodipine

E.Atenolol

Answer:Amlodipine

Explanation:

The 2011 NICE guidelines recommended treating isolated systolic hypertension the same way as standard hypertension. In this age group calcium channel blockers would be first-line.

Question:

A 59-year-old woman presents for review of her hypertension. Her clinic blood pressure reading is 152/86 mmHg. She currently takes amlodipine at the maximum recommended dose and simvastatin. She has tried ramipril in the past however reports that she had an irritating cough while taking it.

What is the most appropriate next step in managing her hypertension?

A.Add candesartan

B.Add enalapril

C.Add spironolactone

D.Replace amlodipine with candesartan

E.Replace amlodipine with indapamide

Answer:Add candesartan

Explanation:

Poorly controlled hypertension, already taking a calcium channel blocker - add an ACE inhibitor or an angiotensin receptor blocker or a thiazide-like diuretic

Important for meLess important

As this woman has already experienced side effects of ramipril in the past, it would not be appropriate to recommend an ACE inhibitor such as enalapril. Adding an angiotensin receptor blocker is therefore the next most appropriate option from those given in controlling her hypertension.

Spironolactone may be considered if her hypertension was still poorly controlled after taking a calcium channel blocker plus either an ACE inhibitor or an angiotensin receptor blocker as per step 3 treatment, however, in this case it is more appropriate to start her on an ACE inhibitor or angiotensin receptor blocker first as per step 2 treatment.

NICE guidance from 2019 now indicates that adding a thiazide-like diuretic such as indapamide may also be considered in poorly controlled hypertension if already taking a calcium channel blocker therefore this may be another appropriate option in addition, rather than replacement.

Question:

A 74-year-old male presents with sudden onset right-sided weakness. On examination you note weakness of the right face, upper and lower limbs. You also note that the left eye is in a 'down and out' position and the pupil is dilated.

What is the most likely diagnosis?

A.Lateral medullary syndrome

B.Weber's syndrome

C.Syringobulbia

D.Left sided total anterior circulation stroke

E.Left sided partial anterior circulation stroke

Answer:Weber's syndrome

Explanation:

'Crossed findings' with cranial findings ipsilateral to the lesion and motor or sensory findings on the contralateral side of the body are characteristic of brain stem infarcts. Weber's syndrome is a midbrain stroke syndrome that involves the fascicles of the oculomotor nerve resulting in an ipsilateral CN III palsy and contralateral hemiplegia or hemiparesis.

Question:

A 59-year-old man attends his GP with increasing mild confusion. This came on 2 weeks ago and has been getting progressively worse, both in his and his husband's opinion. His past medical history is significant for being in a road traffic collision 6 weeks prior. At the time, he was discharged from the emergency department with no injuries but did suffer a head injury. Since then, he reports no headache, nausea or changes in vision.

On examination, there is no focal neurological deficit, an ocular examination is normal and a mental state exam is unremarkable.

Which of the following is the most likely cause of this man's presentation?

A.Diffuse axonal injury

B.Extradural haematoma

C.Intraventricular haemorrhage

D.Subarachnoid haemorrhage

E.Subdural haematoma

Answer:Subdural haematoma

Explanation:

Subdural haematomas can present several weeks after the initial head injury

Important for meLess important

This man presents with confusion 4 weeks after a traumatic head injury. The most likely cause of new-onset neurological symptoms after a head injury is a subdural haematoma. Chronic subdural haematomas most likely present 4-7 weeks following the insult and can present with a wide variety of different neurological symptoms. They are caused by an initial injury, which causes bleeding and inflammation, which becomes superseded by fibrosis and angiogenesis. This angiogenesis produces fragile leaky blood vessels, which causes blood to slowly continue to accumulate even after the injury.

Diffuse axonal injury is incorrect as this is a very severe form of traumatic brain injury, which will result in greater severity of symptoms than seen in this patient, such as unconsciousness. Equally, there would not usually be as long a latent period before symptoms begin.

Extradural haematoma is incorrect as this would present with sudden onset soon after the injury, following a brief lucid interval. A headache would be characteristic, and compression of the third cranial nerve may lead to a fixed and dilated pupil.

Intraventricular haemorrhage is incorrect as this would present soon after the trauma, with nausea, vomiting, headache and confusion.

Subarachnoid haemorrhage is incorrect, as this has a much more acute onset involving a characteristic thunderclap headache.

Question:

A 29-year-old woman develops severe vomiting four hours after having lunch at a local restaurant. What is the most likely causative organism?

A.Escherichia coli

B.Shigella

C.Campylobacter

D.Salmonella

E.Staphylococcus aureus

Answer:Staphylococcus aureus

Explanation:

The short incubation period and severe vomiting point to a diagnosis of Staphylococcus aureus food poisoning.

Question:

A 33-year-old Afro-Caribbean woman comes to see you reporting that she has noticed that her hands feel very cold and painful in the winter. In the morning they often change colour to become pale, then blue and red.

She has tried wearing gloves in the winter and using hand warmers both of which have helped her symptoms a little. She is keen to try medications to see if they would help improve things further.

Given the likely diagnosis, which one of the following medications should be prescribed?

A.Propranolol

B.Nifedipine

C.Ibuprofen

D.Amitriptyline

E.Mycophenolate

Answer:Nifedipine

Explanation:

Nifedipine is a pharmacological option for Raynaud's phenomenon

Important for meLess important

This patient has Raynaud's syndrome. Patients with Raynaud's should be advised to keep their hands warm and stop smoking. Nifedipine is the first line drug treatment, other treatments that may be useful according to NICE include evening primrose oil, sildenafil and prostacyclin (for severe attacks/digital gangrene). Chemical or surgical sympathectomy may help in those who have severe disease.

Propranolol is a beta-blocker a common side effect of which is cold peripheries, hence this is likely to make the problem worse. Ibuprofen is an analgesic which may help the pain but would not help the other symptoms. Amitriptyline is a tricyclic antidepressant that is also used for neuropathic pain. Mycophenolate is an immunosuppressive medication used in autoimmune conditions and post-transplant.

Question:

A 70-year-old woman of Brazilian descent is referred for an outpatient DEXA scan by her general practitioner. She has obesity and chronic kidney disease (for which she takes ramipril). She has never smoked and rarely drinks alcohol. Her DEXA scan now shows a T-score of -3 and she is started on alendronic acid.

What risk factor predisposes her to this condition?

A.Chronic kidney disease

B.Her ethnicity

C.Her smoking status

D.Obesity

E.Ramipril

Answer:Chronic kidney disease

Explanation:

Chronic kidney disease is a risk factor for osteoporosis

Important for meLess important

Chronic kidney disease (CKD) is one of many risk factors for osteoporosis. Osteoporosis is defined as a T score < -2.5 on DEXA scan. Between -1 and -2.5 signifies osteopenia. CKD leads to osteoporosis via a series of metabolic pathways including interruptions to vitamin D synthesis and increased serum phosphate, triggering increased parathyroid hormone (PTH) secretion and in turn increased osteoclast activation.

Her ethnicity (Brazilian) is not a risk factor. Being Asian or Caucasian is a risk factor for osteoporosis but it is not well understood why. Other ethnicities do not change the risk.

Her smoking status is incorrect. Non-smokers are relatively protected against osteoporosis as smoking is big a risk factor for developing it. There are many ways in which smoking affects bone metabolism including limiting the supply of oxygen to the bones, slowing down osteoblast production, and reducing calcium absorption.

Obesity is not a risk factor for osteoporosis. On the contrary, a low body mass index is associated with osteoporosis. It is thought that this is because extra weight stresses the bone, which stimulates the formation of new bone tissue. In addition, adipose tissue is a source of oestrogen synthesis which helps prevent bone density loss.

Ramipril is not a risk factor for osteoporosis. However many drugs (including corticosteroids, SSRIs, anti-epileptics, and proton pump inhibitors) are.

Question:

You are asked to review a neonate on the labour ward. They were born at 40 weeks gestation with no complications. Parents are reluctant to administer vitamin K to the baby, stating they prefer a more natural approach. What advice would you give to the parents regarding best practice in neonatal vitamin K?

A.Once-off IM injection

B.Once-off IV injection

C.Once-off oral vitamin K

D.IM vitamin K at day 1 and day 8

E.Oral vitamin K, once a week for 12 weeks

Answer:Once-off IM injection

Explanation:

Both oral and IM routes of vitamin K are licensed for neonates, but IM should be recommended to parents due to reduced concerns about compliance and shorter (one-off) treatment duration

Important for meLess important

Vitamin K is very important in preventing haemorrhagic disease of the newborn. It can be given either intramuscularly or orally.

It is normally given as a once-off IM injection shortly after birth.

The oral form is not recommended for healthy neonates as there is risk of insufficient dosage being given due to parents either forgetting to administer it or baby vomiting up the medication.

Question:

A 68-year-old patient with idiopathic pulmonary fibrosis undergoes spirometry testing. Forced vital capacity (FVC) and forced 1-second expiratory volume (FEV1) are measured, along with gas transfer factor.

Which of the lung function test findings shown below are most characteristic of a patient with idiopathic pulmonary fibrosis?

A.FEV1/FVC 55%; Transfer factor reduced

B.FEV1/FVC 65% ; Transfer factor increased

C.FEV1/FVC 65%; Transfer factor normal

D.FEV1/FVC 85%; Transfer factor reduced

E.FEV1/FVC 85%; Transfer factor increased

Answer:FEV1/FVC 85%; Transfer factor reduced

Explanation:

Idiopathic pulmonary fibrosis presents with an increased FEV1/FVC ratio and reduced transfer factor

Important for meLess important

Pulmonary fibrosis is a restrictive disease, therefore FEV1/FVC ratio will be normal (70-80%) or increased (> 80%), and transfer factor normal or reduced.

In restrictive lung disease, total lung capacity is reduced, but there is no additional effect on expiratory capacity. Thus, forced vital capacity (FVC) is reduced along with forced 1-second expiratory volume (FEV1). However, the proportion of vital capacity exhaled in one second (FEV1/FVC) will not decrease as both volumes have been decreased. If anything, FEV1/FVC will increase since the resistance of the lung has increased, assisting with expiration.

A reduced gas transfer factor simply indicates that there is reduced ability of the lungs to perform gas exchange. During pulmonary function testing, the patient inhales a small volume of carbon monoxide and the concentration exhaled is then recorded; the gas transfer factor can be obtained from this measurement.

Reduction in gas transfer factor occurs in both restrictive and obstructive pulmonary disease, although due to different mechanisms. In restrictive disease, the deficit is caused by an overall reduction in lung volumes. Thus, when transfer factor is compared to alveolar volume, the ratio of transfer factor : alveolar volume is not reduced.

In obstructive disease, loss of alveolar structure (i.e. emphysema) with or without increased diffusion distance due to inflammation & excessive mucus impair gas transfer, while alveolar volume itself is not reduced. Thus, the ratio of transfer factor : alveolar volume is reduced.

Question:

A 59-year-old man has a set of routine blood tests sent including renal function, which shows the following.

Na+ 138 mmol/L (135 - 145)

K+ 4.1 mmol/L (3.5 - 5.0)

Bicarbonate 27 mmol/L (22 - 29)

Urea 5.0 mmol/L (2.0 - 7.0)

Creatinine 120 µmol/L (55 - 120)

eGFR 65 ml/min (>90)

His urine dip test is as follows:

pH 6.0

Glucose Negative

Ketones Negative

Blood Negative

Protein Negative

Nitrite Negative

Leukocytes Negative

He has a renal ultrasound which shows no abnormalities.

How would his renal function be classed?

A.CKD stage 1

B.CKD stage 2

C.CKD stage 3a

D.CKD stage 3b

E.Normal renal function

Answer:Normal renal function

Explanation:

CKD: only diagnose stages 1 & 2 if supporting evidence to accompany eGFR

Important for meLess important

This patient has an eGFR of 65 ml/min.

Patients should only be diagnosed with CKD stage 1 if eGFR >90ml/min or stage 2 if eGFR 60-90ml/min if there are markers of kidney disease including proteinuria, haematuria, electrolyte abnormalities or structural abnormalities detected. This patient does not have any features of kidney damage making these answers incorrect.

Hence this patient has a normal renal function.

CKD stage 3a is diagnosed when a patient has an eGFR of 45-59 ml/min.

CKD stage 3b is diagnosed when a patient has an eGFR of 30-44 ml/min.

Question:

A 51-year-old woman presents with severe epigastric pain radiating to her back. She has no significant past medical history. On examination, her epigastrium is very tender but not peritonitic. Observations are as follows: heart rate 110 beats per minute, blood pressure 125/75 mmHg, SpO2 96% on air, and temperature 37.2ºC.

Blood results are as follows:

Hb 125 g/L Male: (135-180)

Female: (115 - 160)

Platelets 560 \* 109/L (150 - 400)

WBC 14.2 \* 109/L (4.0 - 11.0)

Calcium 1.9 mmol/L (2.1-2.6)

Creatinine 110 µmol/L (55 - 120)

CRP 120 mg/L (< 5)

Amylase 1420 U/L (40-140)

LDH 320 IU/L (140-280)

What feature suggests severe disease?

A.Amylase level

B.CRP

C.Hypocalcaemia

D.LDH

E.WBC count

Answer:Hypocalcaemia

Explanation:

Whilst hypercalcaemia can cause pancreatitis, hypocalcaemia is an indicator of pancreatitis severity

Important for meLess important

The clinical features and significantly raised amylase confirms a diagnosis of acute pancreatitis.

There are several scoring systems used to identify cases of severe pancreatitis which may require intensive care management. These include the Ranson score, Glasgow score and APACHE II.

Whilst hypercalcaemia can cause pancreatitis, hypocalcaemia is an indicator of pancreatitis severity.

An LDH of greater than 350 IU/L is an indicator of pancreatitis severity.

A WBC count greater than 16 is used to predict severe disease.

A CRP of greater than 150 is a marker of severe disease. Bacterial translocation should also be considered with a markedly raised CRP level.

Serum amylase is used to diagnose pancreatitis. The absolute levels do not correlate with disease severity.

Question:

A 31-year-old man presents to your clinic complaining of ongoing hearing loss, otalgia and tinnitus bilaterally.

Upon examination, otoscopy shows some wax in the canals and normal tympanic membranes. Weber's test demonstrates no lateralisation and Rinne's test is positive bilaterally, yet a coarse hearing test shows hypoacusis bilaterally.

You note this patient was previously diagnosed with a testicular seminoma now in remission, treated with orchidectomy and cisplatin-based chemotherapy.

In view of the above, what is the most appropriate next management step?

A.Perform ear microsuction as an outpatient

B.Prescribe olive oil drops

C.Refer to ENT for further evaluation for acoustic hearing aids

D.Refer to ENT for further evaluation for cochlear implants

E.Book for a follow-up appointment in 2 weeks' time

Answer:Refer to ENT for further evaluation for acoustic hearing aids

Explanation:

Adults are generally required to have had a failed trial of hearing aids before having a cochlear implant

Important for meLess important

This patient is presenting with bilateral sensorineural hearing loss, as suggested by the normal Weber's and Rhinne's tests in the context of evident hypoacusis bilaterally. This is also accompanied by otalgia and tinnitus. Ototoxicity may be a side effect of the cisplatin-based chemotherapy regimen he received in the past.

It is normal to encounter some wax upon examination of the ear canal. If a copious amount of cerumen were occluding the ear canals this would be evident upon otoscopy and would be associated with a negative Rinne's test. In this case, there is no evidence of conductive hearing loss and ear microsuction and olive oil drops would unlikely benefit this patient.

Referral to ENT services would be the most appropriate outcome for this consultation. Formal audiometric assessment would be performed, and hearing aids would likely be arranged for this patient. Evaluation for a cochlear implant would be commenced after at least 3 months trial of acoustic hearing aids.

A follow-up appointment in 2 weeks' time is unlikely to see any changes in the patient's symptoms.

Question:

A 3-year-old boy is brought to the emergency department with difficulty breathing. Since this morning, he has developed a fever (38.3ºC) and become progressively short of breath. On examination, he appears unwell with stridor and drooling. His past medical history is otherwise unremarkable.

Given the likely diagnosis, which of the following is the most likely causative organism?

A.Bordetella pertussis

B.Haemophilus influenzae B

C.Streptococcus pneumoniae

D.Parainfluenza virus

E.Respiratory syncytial virus

Answer:Haemophilus influenzae B

Explanation:

Acute epiglottitis is characterised by rapid onset fever, stridor and drooling

Important for meLess important

This is a two-stage question, which first requires identification of acute epiglottitis in a clinically unwell child (presenting with stridor, drooling, and a rapid onset fever), followed by confirmation of the confirmatory organism. Acute epiglottitis is rare, but severe infection caused by Haemophilus influenzae B (HiB) bacteria, which causes inflammation of the epiglottitis. This results in the characteristic stridor and drooling. It is critical that the child is kept calm and that specialist input is sought from anaesthetics and paediatrics. Due to the current vaccination against HiB in the UK, epiglottitis is uncommon.

Bordetella pertussis is an incorrect answer. Bordetella pertussis is the causative organism for whooping cough, which presents very differently. Whooping cough characteristically has 3 stages, including a catarrhal stage (approximately 1-2 weeks of cold-like symptoms), a paroxysmal stage (1-6 weeks of coughing), and a convalescent stage (weeks to months of improving coughing). The paroxysmal stage includes the characteristic coughing fits.

Streptococcus pneumoniae is not correct. Streptococcus pneumoniae is a common organism, often seen in respiratory conditions such as pneumonia. Whilst it may cause illness in children, it would not typically produce the described presentation of rapid onset fever, drooling, and stridor.

Parainfluenza virus is incorrect. Parainfluenza virus is commonly associated with croup, which is a common respiratory condition in children aged between 6-months and 3-years. Croup presents differently to the above scenario, with children being generally unwell, followed by the development of a classic barking cough.

Respiratory syncytial virus is not correct. Respiratory syncytial virus (RSV) is a common respiratory organism, which can cause bronchiolitis. Bronchiolitis typically affects younger children (less than 1 year of age), causing shortness of breath and a wheeze. The presentation of stridor with drooling should instead prompt consideration for epiglottitis.

Question:

A 49-year-old man attends his general practitioner reporting that he has noticed unusual weight gain over the last several months. He has noticed he is gaining weight around his abdomen and face. However, he reports that his limbs are looking thinner. He is also feeling run-down and has a low mood. His last routine blood pressure test revealed a blood pressure of 160/120 mmHg.

Apart from anti-hypertensives, he does not routinely take any medications.

Along with a set of blood tests, his doctor arranges dexamethasone suppression testing, which reveals the following:

Low dose dexamethasone No suppression of cortisol

High dose dexamethasone Suppression of cortisol and adrenocorticotropic hormone (ACTH)

Based on the above information, what is the most likely underlying cause for this patient's presentation?

A.Adrenal adenoma

B.Adrenal carcinoma

C.Carcinoid tumour

D.Pituitary adenoma

E.Pituitary carcinoma

Answer:Pituitary adenoma

Explanation:

The most common endogenous cause of Cushing’s syndrome is a pituitary adenoma (also known as Cushing's disease)

Important for meLess important

The cushingoid features described in this patient, along with the low mood and hypertension point to a diagnosis of Cushing's syndrome due to glucocorticoid excess. The most common cause of this syndrome in the UK is exogenous therapeutic steroid use. However, with no history of steroid use in this patient, this is an unlikely diagnosis. The second most common cause of Cushing's syndrome is Cushing's disease, caused by a pituitary adenoma. Epidemiology alone makes this answer the most likely option, however the results of the dexamethasone suppression test also suggest this as the underlying cause. Lack of cortisol suppression by low dose dexamethasone identifies that excess glucocorticoid is the cause of the symptoms. High dose testing is used to localise the problem. If both ACTH and cortisol are suppressed by high dose dexamethasone, this points to a pituitary cause. If only cortisol is suppressed by high dose dexamethasone, an adrenal cause is likely. If neither are suppressed, ectopic ACTH secretion is likely the cause.

An adrenal adenoma accounts for 5-10% of cases of Cushing's syndrome in the UK, making it less common than a pituitary adenoma, which accounts for over 70% of cases. Furthermore, an adrenal cause would result in the failure of high dose dexamethasone to suppress ACTH.

An adrenal carcinoma causing Cushing's syndrome can occur, but it is very rare.

A carcinoid tumour can release ectopic ACTH, causing Cushing's syndrome. This is less common than a pituitary adenoma, and will also cause failure of high dose dexamethasone to suppress either ACTH or cortisol.

Pituitary carcinomas are very rare, accounting for 0.1% of all pituitary tumours. They tend to be very aggressive and most commonly arise from previous benign prolactinomas.

Question:

A 45-year-old man taking chlorpromazine for schizophrenia develops involuntary pouting of the mouth. What side-effect of antipsychotic medication is this an example of?

A.Acute dystonia

B.Parkinsonism

C.Tardive dyskinesia

D.Neuroleptic malignant syndrome

E.Akathisia

Answer:Tardive dyskinesia

Explanation:

Antipsychotics may cause tardive dyskinesia

Important for meLess important

Question:

A 38-year-old woman is reviewed after treatment of sore throat and polyarthritis. Blood tests showed a raised ESR and positive anti-streptolysin O titre, and an ECG showed PR prolongation. She was fully treated and has recovered and is asymptomatic.

Her heart rate is 95 bpm and her blood pressure is 134/73 mmHg. On auscultation, a mid-late diastolic murmur is heard which is louder on expiration with a loud first heart sound. There are no signs of peripheral oedema and lung sounds are clear.

She has no other history and is generally fit and well.

What is the next best step in her management at this point in time?

A.Discharge with safety-netting advice

B.Mitral valve commissurotomy

C.Mitral valve replacement

D.Monitor with regular echocardiography

E.Percutaneous mitral balloon valvotomy

Answer:Monitor with regular echocardiography

Explanation:

Mitral stenosis patients who are asymptomatic are generally monitored and given medical therapy rather than having percutaneous/surgical intervention

Important for meLess important

Monitor with regular echocardiography is correct. This patient has a mid-diastolic murmur best heard in expiration with a loud S1, which suggests mitral stenosis. Generally speaking, murmurs heard best in expiration suggest a left valve problem (Expiration, lEft), and murmurs heard best in inspiration suggest a right valve problem (Inspiration, rIght).

It is likely that this patient's mitral stenosis has developed due to their rheumatic fever, as they have features suggestive of and diagnostic of rheumatic fever. They had positive anti-streptolysin O titres (evidence of recent streptococcal infection), polyarthritis (a major criterion), a raised ESR (a minor criterion), and PR prolongation on an ECG (another minor criterion). The 1 major and 2 minor criteria with evidence of a recent streptococcal infection qualify for a diagnosis of rheumatic fever.

One of the complications of rheumatic fever is mitral stenosis, which occurs as a result of molecular mimicry and the immune system damaging the mitral valve, mistaking it for proteins on a Streptococcal bacterium's surface.

Because this patient is asymptomatic, this means their mitral valve is sufficiently working, meaning surgery is not currently required. Such patients should have regular echocardiography to monitor for progression and early intervention should complications occur such as worsening stenosis, pulmonary hypertension, and atrial fibrillation.

Discharge with safety-netting advice is incorrect. Although this patient does not require treatment, discharging her would be inappropriate at this point given that the mitral stenosis may progress and complications may still develop. It is essential that she is monitored with regular ultrasound scans to ensure these complications can be identified and early intervention can take place.

Mitral valve commissurotomy is incorrect. This is a treatment option for symptomatic mitral stenosis nad involves cutting through muscle tissue and separating the flaps of the mitral valve to relieve stenosis. This patient is asymptomatic and therefore does not require treatment, but requires regular monitoring with echocardiography to detect complications arising. If she were to require surgery, a percutaneous mitral balloon valvotomy is preferred as it carries fewer risks (e.g. bleeding and infection).

Mitral valve replacement is incorrect. This is a treatment option for symptomatic mitral stenosis. This patient is asymptomatic and therefore does not require treatment, but requires regular monitoring with echocardiography to detect complications arising. If she were to require surgery, a percutaneous mitral balloon valvotomy is preferred as it carries fewer risks (e.g. bleeding and infection).

Percutaneous mitral balloon valvotomy is incorrect. Although this is the ideal treatment option for symptomatic mitral stenosis, this patient is asymptomatic and therefore does not require treatment, but requires regular monitoring with echocardiography to detect complications arising.

Question:

A 57-year-old female presents to the emergency department with constipation and a distended abdomen. She has not been able to pass stools or flatus for five days. A CT scan shows the presence of colorectal carcinoma in the sigmoid colon, causing an acute obstruction. Her father died in his sixties of hereditary non-polyposis colorectal carcinoma. The team suspects she has the same condition.

Which one of the following genetic mutations are associated with her diagnosis?

A.APC gene mutations

B.VHL gene mutation

C.BRCA1/BRCA2 gene mutations

D.MSH2/MLH1 gene mutations

E.TP53 gene mutation

Answer:MSH2/MLH1 gene mutations

Explanation:

MSH2/MLH1 gene mutations are associated with hereditary non-polyposis colorectal carcinoma

Important for meLess important

Pathogenic variants of the MSH2 gene are associated with hereditary non-polyposis colorectal carcinoma (HNPCC), also known as Lynch syndrome. This predisposes individuals to colon cancer as well as endometrial, ovarian and gastric cancers. The MSH2 gene is a DNA mismatch repair gene and so defects in the gene result in a much higher chance of mutation that can result in oncogenesis.

The APC gene mutation is pathogenic in familial adenomatous polyposis (FAP). This is characterised by the formation of many adenomatous polyps in the colon, each of which has the potential for malignant transformation to colorectal cancer. The lifetime risk of colon cancer for patients with FAP is ~100%.

VHL is a tumour suppressor gene that may result in von Hippel-Lindau syndrome when pathogenic variants are present. This results in the formation of multiple non-cancerous haemangiomas in various regions but also an increased risk of renal cell carcinoma and phaeochromocytoma.

BRCA1 and BRCA2 are tumour suppressor genes that are associated with breast and ovarian cancer when there are pathogenic variants present. Other cancers associated include prostate and pancreatic cancer, which are more associated with BRCA2 than BRCA1.

TP53 is a tumour suppressor gene that codes for p53. A pathogenic mutation may result in Li-Fraumeni syndrome, a cancer predisposition syndrome with increased risk of sarcomas, breast and adrenal cancer as well as acute leukaemias.

Question:

Mrs Bell comes to see you to ask about her medication. Following a transient ischaemic attack (TIA) a few of weeks ago, the stroke clinic started her on clopidogrel 75mg once a day. She tells you that this is causing her diarrhoea and she is completely fed-up and has stopped taking it.

What should you do?

A.Advise her to continue clopidogrel and add in loperamide

B.Change to apixaban

C.Change to aspirin

D.Change to dual therapy with aspirin and modified-release dipyridamole

E.Change to modified-release dipyridamole

Answer:Change to dual therapy with aspirin and modified-release dipyridamole

Explanation:

If clopidogrel is contraindicated or not tolerated, given aspirin and modified release dipyramidole for secondary prevention following stroke

Important for meLess important

Change to dual therapy with aspirin and modified-release dipyridamole is the correct answer. Gastrointestinal side effects are common with clopidogrel. Dual therapy with aspirin and modified-release dipyridamole is just as effective in secondary prevention of TIA, so if clopidogrel is not tolerated, this is the second line option. Some centres might in fact use this as the first-line option after TIA, which is in accordance with NICE guidance; the Royal College of Physicians advises clopidogrel first-line after TIA (cheaper and in-line with stroke secondary prevention).

Change to apixaban. Antiplatelets are prescribed for the secondary prevention of stroke, not anticoagulants such as apixaban unless there is a specific indication such as atrial fibrillation.

Question:

A 26-year-old man presents to the Emergency Department with general malaise and pain in his perineum and scrotum. It started two days ago. He also has increased urinary frequency and some burning pain on passing urine. He has no significant past medical history.

On examination, his heart rate is 75/minute, respiratory rate 16/minute, blood pressure 118/80mmHg, temperature 37.6ºC. On digital rectal examination, his prostate is tender and there is boggy enlargement.

What is an appropriate investigation?

A.Screen for sexually transmitted infections

B.Measure PSA

C.Test for HIV

D.Biopsy of prostate

E.No investigation required

Answer:Screen for sexually transmitted infections

Explanation:

Acute prostatitis in a young man should prompt testing for STIs

Important for meLess important

This is a gentleman presenting with urinary symptoms and a tender enlarged prostate. This is the typical history of acute prostatitis. The most common causative organism is Escherichia coli. However, particularly in younger men, a significant minority can be caused by sexually transmitted organisms, such as Chlamydia trachomatis and Neisseria gonorrhoea.

The other options are inappropriate for this patient:

1) Measure PSA: this will be raised in prostatitis but is not specific. Further, digital rectal examination can raise it

2) Test for HIV: this blood-borne virus would not cause prostatitis and it would be inappropriate to test this patient without any other indicators

3) Biopsy of prostate: is not indicated for acute prostatitis. It may be of some value in chronic prostatitis

4) No investigation required: whilst the diagnosis of acute prostatitis is clinical, attempts should be made to identify the causative organism

Question:

A 19-year-old woman is found collapsed during her gap year in Bangladesh. She has had a 2-day history of profuse watery diarrhoea and is now severely dehydrated, the doctors consider if she has cholera. Which of the following features could also be associated with this diagnosis?

A.Blood in the stool

B.Hypoglycemia

C.Recently eating some raw chicken

D.Recently eating some reheated rice

E.Exposure to a newly installed air-conditioning system

Answer:Hypoglycemia

Explanation:

Cholera can present with diarrhoea and hypoglycaemia

Important for meLess important

Cholera is an infection most commonly associated with foreign travel, specifically to areas in Africa, Asia, the Middle East and South America. It can also be associated with shellfish in these areas. Cholera can cause many metabolic abnormalities including hypokalaemia, hypoglycaemia, and metabolic acidosis.

Blood in the stool is not associated with cholera, however, can be associated with other infectious agents such as Campylobacter jejuni and Salmonella

Recently eating some raw chicken would not predispose someone to developing cholera and is more associated with Salmonella and Campylobacter infection

Recently eating some reheated rice is associated with the bacterial infection Bacillus cereus and not cholera

Exposure to a newly installed air-conditioning system is part of the classic history for Legionella infection

Question:

A 45-year-old male presents to his general practitioner with a new-onset itchy rash on his back. He has a past medical history of hypertension managed with ramipril and asthma that he controls with a salbutamol inhaler. He works as a gardener and the pruritus is preventing him from doing his job. Otherwise, he feels well and does not complain of other symptoms. The rash is shown below:

© Image used on license from DermNet NZ

Which one of the following is the most likely diagnosis?

A.Angioedema

B.Atopic dermatitis

C.Erythema multiforme

D.Henoch-Schonlein purpura

E.Urticaria

Answer:Urticaria

Explanation:

The correct answer is urticaria. This patient presents with severely itchy, smooth, slightly elevated papules. This is a classical presentation of urticaria (or hives), a vascular reaction of the skin, usually caused by an allergen, but sometimes the trigger is not identifiable. This patient works as a gardener, so it could have been possibly triggered by a species of plants he worked with. The first-line management option is an antihistamine.

Angioedema is defined as the formation of oedema of the area beneath the skin or mucosa. The cause can be immunologic, non-immunologic, or idiopathic, and it is a recognised side effect of angiotensin-converting enzyme inhibitors such as ramipril. Sometimes, it can be accompanied by urticaria. But the patient does not complain of any other symptoms other than the rash, making the diagnosis unlikely. Additionally, angioedema is usually seen on the mouth and face rather than systemic and truncal skin.

Atopic dermatitis (or eczema) is a common presentation, especially in children. It presents with pruritic, erythematous, and scaly skin lesions often localized to the flexural surfaces of the body. It is usually associated with asthma, that this patient has. But this patient presents with raised lesions and normal surrounding skin on the back rather than flexor surfaces making the diagnosis unlikely.

Erythema multiforme is a hypersensitivity reaction usually triggered by infections. It is characterized by target lesions and is usually initially seen on the back of the hands or feet before spreading to the torso. Pruritus is occasionally seen and is usually mild, whilst this patient is very disturbed by the itchiness.

Henoch-Schonlein purpura is an IgA mediated small vessel vasculitis. It is usually seen in children following an infection. It presents with a palpable purpuric rash (with localized oedema) over the buttocks and extensor surfaces of arms and legs. The lesions of the patient do not resemble the classical features of Henoch-Schonlein purpura.

Question:

You are called to the coronary care unit. A patient who has been admitted following a myocardial infarction has developed a broad complex tachycardia. You suspect a diagnosis of polymorphic ventricular tachycardia. Which one of the following factors may have precipitated this?

A.Dehydration

B.Hyponatraemia

C.Hypokalaemia

D.Hypoglycaemia

E.Bisoprolol

Answer:Hypokalaemia

Explanation:

Hypokalemia is the most important cause of ventricular tachycardia (VT) clinically, followed by hypomagnesaemia. Severe hyperkalaemia may cause VT in certain circumstances, for example in patients with structural heart disease, but it is not as common a cause as hypokalemia.

Question:

A 35-year-old man presents with right eye pain which is worse on movement. Examination reveals a relative afferent pupillary defect. Which one of the following is the most likely cause of his problems?

A.Motor neuron disease

B.Myasthenia gravis

C.New variant CJD

D.Multiple sclerosis

E.Guillain-Barre syndrome

Answer:Multiple sclerosis

Explanation:

These are features of optic neuritis

Question:

A 29-year-old woman presents to the genitourinary medicine clinic for treatment of recurrent genital warts. Which one the following viruses are most likely to be responsible?

A.Human papilloma virus 16 & 18

B.Human papilloma virus 13 & 17

C.Human papilloma virus 6 & 11

D.Human papilloma virus 12 & 14

E.Human papilloma virus 15 & 21

Answer:Human papilloma virus 6 & 11

Explanation:

Genital warts - 90% are caused by HPV 6 & 11

Important for meLess important

Types 6 and 11 are responsible for 90% of genital warts cases

Question:

A 74-year-old man attends your clinic complaining of increased urinary frequency. He also mentions that he has become more thirsty lately.

The patient has a past medical history of hypertension, hypercholesterolemia, and obesity. He underwent a CABG procedure 4-years ago following a STEMI.

You suspect he may have diabetes and perform a blood glucose test. The results are as follows:

Result Normal Range

Random glucose sample 12.2mmol/L <7.8mmol/L

What treatment should be prescribed for this patient?

A.Lifestyle advice alone

B.Metformin and empagliflozin

C.Metformin and gliclazide

D.Metformin and pioglitazone

E.Metformin and sitagliptin

Answer:Metformin and empagliflozin

Explanation:

SGLT-2 inhibitors should be used in addition to metformin as initial therapy for T2DM if CVD, high-risk of CVD or chronic heart failure

Important for meLess important

Metformin and empagliflozin is correct. This patient requires medical treatment for his T2DM. As for most patients with diabetes, metformin is usually prescribed first. However, this patient will also require treatment with an SGLT-2 inhibitor due to his cardiovascular disease (CVD) (as evidenced by his past medical history). SGLT-2 inhibitors should be started in those patients with CVD, at high risk of CVD or those with chronic heart failure as it is proven to improve vascular function. As empagliflozin is an SGLT-2 inhibitor, this answer is correct. The patient will be first prescribed metformin, and when this is titrated up to a suitable level, an SGLT-2 inhibitor will be added.

Lifestyle advice alone is incorrect. This patient has a diagnosis of diabetes and CVD. Therefore, this patient will need much more than just lifestyle advice to manage his diabetes and any further complications.

Metformin and gliclazide is incorrect. As mentioned above patients like this who have CVD require treatment with metformin and an SGLT-2 inhibitor. Gliclazide is a sulfonylurea drug and therefore, would not be recommended as the first-line treatment option for a patient with CVD and T2DM.

Metformin and pioglitazone is incorrect. As mentioned above patients like this who have CVD require treatment with metformin and an SGLT-2 inhibitor. Pioglitazone is not an SGLT-2 inhibitor drug and therefore, would not be recommended as the first-line treatment option for a patient with CVD and T2DM.

Metformin and sitagliptin is incorrect. As mentioned above patients like this who have CVD require treatment with metformin and an SGLT-2 inhibitor. Sitagliptin is a DPP-4 inhibitor drug and therefore, would not be recommended as the first-line treatment option for a patient with CVD and T2DM.

Question:

A 4-year-old boy is brought to the paediatric clinic by his mother with a sore throat worse with swallowing, headaches, and malaise. She denies any coughing.

On examination, his temperature is 39ºC, his heart rate is 105 bpm, and his tonsils are symmetrically enlarged and erythematous, with white patches present. There is tender anterior cervical lymphadenopathy. The general impression of the doctor is that of an unwell child.

He has no past medical history but is allergic to penicillin.

What is the most appropriate immediate step in his management?

A.Immediate hospital admission

B.Offer delayed antibiotic prescription

C.Prescribe clarithromycin

D.Prescribe phenoxymethylpenicillin

E.Recommend analgesia and supportive treatment

Answer:Immediate hospital admission

Explanation:

In children with fevers, appearing unwell to a paediatric healthcare professional is considered to be a red flag

Important for meLess important

Immediate hospital admission is correct. This child has signs and symptoms of tonsillitis and has a Centor score of 4, as he has tonsillar exudate, tender cervical lymphadenopathy, fever, and no cough. Although this qualifies for antibiotic treatment, the NICE traffic light system for feverish illness in children classifies appearing unwell to a paediatric healthcare professional as a red flag, suggesting severe illness. This question mentions that the child appears very unwell to the doctor in the paediatric clinic, therefore this red flag is present. The presence of any red flag warrants immediate admission and assessment due to the risk of severe infection occurring.

Offer delayed antibiotic prescription is incorrect. Although his child's Centor score is 4, warranting immediate antibiotic prescription, this child appears unwell to a healthcare professional which is a red flag, suggesting severe illness and warranting immediate admission and assessment by paediatrics.

Prescribe clarithromycin is incorrect. Although this would be appropriate to prescribe given his penicillin allergy, this child appears unwell to a healthcare professional which is a red flag, suggesting severe illness and warranting immediate admission and assessment by paediatrics.

Prescribe phenoxymethylpenicillin is incorrect. This would be contraindicated given this patient's allergy and clarithromycin would be more appropriate, however, this child appears unwell to a healthcare professional which is a red flag, suggesting severe illness and warranting immediate admission and assessment by paediatrics.

Recommend analgesia and supportive treatment is incorrect. Although his child's Centor score is 4, warranting immediate antibiotic prescription, this child appears unwell to a healthcare professional which is a red flag, suggesting severe illness and warranting immediate admission and assessment by paediatrics.

Question:

A 62-year-old man presents to the emergency department after central chest pain. The chest pain has been ongoing for 60 minutes. An ECG shows ST elevation in leads V1-V5.

Arrangements are made to start PCI and you are asked to prepare the site of insertion.

What is the best site for insertion?

A.Brachial artery

B.Femoral artery

C.Femoral vein

D.Jugular vein

E.Radial artery

Answer:Radial artery

Explanation:

Radial access is preferred to femoral access for primary PCI

Important for meLess important

The correct answer is the radial artery . According to NICE guidelines, the preferred site for the insertion of a catheter to perform PCI is the radial artery. Radial access is preferred to the femoral artery initially as studies have shown it is associated with reduced risk of complications, reduced length of hospital stay, and improved patient quality of life. It is also easy and quick to access in an emergency situation.

Brachial artery is incorrect. The brachial artery is not used for PCI. This is because evidence shows it is more likely to be associated with complications and is often more difficult to locate quickly in patients.

Femoral artery is incorrect. Whilst the femoral artery can also be used, the first and preferred site to use is the radial artery. If this is unsuccessful, then the femoral artery should be used next as it is the next most easily accessible artery.

Femoral vein is incorrect. It is the femoral artery that may be used if the preferred first-line location of the radial artery has failed.

Jugular vein is incorrect. Veins are not used for PCI, as they do not deliver the contents straight to the heart.

Question:

A 31-year-old woman delivers a healthy baby at 39 weeks gestation with no complications during delivery. After a physiological third stage of labour, the patient loses 700 ml of blood and uterine atony is suspected. She has a past medical history of asthma.

An ABCDE approach is taken, IV access is gained, and then the obstetric consultant attempts uterine compression, but the bleeding continues. Her heart rate is 95 bpm, and her blood pressure is 128/75 mmHg.

What is the most appropriate next step in her management?

A.B-Lynch suture

B.IM carboprost

C.IV carboprost

D.IV oxytocin

E.Uterine balloon tamponade

Answer:IV oxytocin

Explanation:

Medical treatments for postpartum haemorrhage secondary to uterine atony include oxytocin, ergometrine, carboprost and misoprostol

Important for meLess important

IV oxytocin is correct. This patient is experiencing a primary postpartum haemorrhage (PPH), which is defined as the loss of >500 ml of blood occurring within 24 hours of delivery of the baby. Uterine atony is the most common cause of PPH, where the uterus fails to contract following delivery of the placenta. Initial steps involve an ABCDE approach, gaining IV access and resuscitation, followed by mechanical palpation of the uterine fundus (rubbing the uterus) to try to stimulate contractions, which have both been done without success here. The next step would be pharmacological management, which involves the use of IV oxytocin.

IM carboprost is incorrect. Although this is another medical management option, this patient has a history of asthma, and carboprost should be avoided in patients with asthma as it can trigger bronchoconstriction.

IV carboprost is incorrect. Carboprost is another medical management option, however, it is given intramuscularly, not intravenously. This patient also has a history of asthma, and carboprost should be avoided in patients with asthma as it can trigger bronchoconstriction.

Uterine balloon tamponade is incorrect. This is the first-line 'surgical' option that should be considered if medical approaches fail. This patient has not yet trialled any medical therapy.

B-Lynch suture is incorrect. This is another surgical option for the management of PPH, however, it should be considered if medical therapy fails, and is not first-line. This patient has not yet trialled any medical therapy.

Question:

A 68-year-old man presents to his GP with shortness of breath when climbing a flight of stairs or walking to the shops at the end of his road. He has a past medical history of chronic obstructive pulmonary disease (COPD), rheumatoid arthritis and hypertension. His regular medications are paracetamol, a salbutamol inhaler and amlodipine. He smokes 20 cigarettes a day and has done so for 40 years.

On examination, his chest is clear with no added sounds and equal air entry bilaterally. Heart sounds are normal. He has a small amount of pitting oedema to both ankles.

You review his previous blood results from a recent check-up appointment:

Hb 155 g/L Male: (135-180)

Female: (115 - 160)

Platelets 364 \* 109/L (150 - 400)

WBC 6.2 \* 109/L (4.0 - 11.0)

Neuts 3.5 \* 109/L (2.0 - 7.0)

Lymphs 1.5 \* 109/L (1.0 - 3.5)

Mono 0.5 \* 109/L (0.2 - 0.8)

Eosin 0.7 \* 109/L (0.0 - 0.4)

Na+ 135mmol/L (135 - 145)

K+ 4.6 mmol/L (3.5 - 5.0)

Bicarbonate 24 mmol/L (22 - 29)

Urea 6.2 mmol/L (2.0 - 7.0)

Creatinine 87µmol/L (55 - 120)

You also review his previous spirometry results:

FEV1 Peak expiratory flow (litres/minute)

62% 200

59% 225

63% 190

Which of the following most strongly suggests that his COPD would be steroid responsive?

A.Laboratory blood tests

B.Past medical history

C.Smoking history

D.FEV1

E.Peak expiratory flow

Answer:Laboratory blood tests

Explanation:

Asthmatic features/features suggesting steroid responsiveness in COPD:

previous diagnosis of asthma or atopy

a higher blood eosinophil count

substantial variation in FEV1 over time (at least 400 ml)

substantial diurnal variation in peak expiratory flow (at least 20%)

Important for meLess important

This gentleman has raised blood eosinophils and therefore this is most likely to suggest steroid responsiveness in his case.

There is no substantial variation in his FEV1 or peak expiratory flow in the results that you are given therefore these do not suggest steroid responsiveness.

There is no history of asthma or atopy in his past medical history so this does not suggest steroid responsiveness.

Smoking history is not a predictive factor for steroid responsiveness in COPD.

Question:

A 59-year-old man is brought into the emergency department with a 5-hour history of central chest pain, radiating to his left arm and jaw. He is sweating profusely and complains of feeling nauseated. His past medical history includes chronic kidney disease stage 3.

On examination, his heart rate is 113 beats/min with a blood pressure of 89/58 mmHg. Chest sounds are clear with saturations of 94% on air and heart sounds are normal. His calves are soft with no pitting oedema.

ECG: ST-depression in leads I, aVL, V5 and V6.

A decision is made to treat the patient medically instead of with percutaneous coronary intervention.

Given the likely diagnosis, what is the most appropriate immediate treatment to initiate for this patient?

A.Aspirin + glyceryl trinitrate

B.Aspirin + ticagrelor + fondaparinux

C.Aspirin + ticagrelor + fondaparinux + glyceryl trinitrate

D.Aspirin + ticagrelor + glyceryl trinitrate

E.Aspirin + ticagrelor + glyceryl trinitrate + oxygen

Answer:Aspirin + ticagrelor + fondaparinux

Explanation:

ACS management: nitrates should be used with caution if the patient is hypotensive

Important for meLess important

This patient has a likely diagnosis of an acute coronary syndrome (ACS) given the history of central chest pain, radiating to the jaw and left arm. Sweating and nausea are also commonly associated symptoms. Given the ECG findings, this patient is likely to be having a non-ST elevation myocardial infarction (NSTEMI). The need for percutaneous coronary intervention has been excluded in this patient, with a preference to treat medically. For such patients, the treatment of an NSTEMI includes dual antiplatelet therapy along with a molecular-weight or unfractionated heparin. Commonly, aspirin, ticagrelor, and fondaparinux are used. Additional first-line agents include analgesia (e.g. morphine) and nitrate therapy. Oxygen is indicated if saturations drop below 94%. However, nitrate therapy such as glyceryl trinitrate (GTN) should be used in caution in patients with low blood pressure, due to their potent vasodilatory properties. Given this patient has a systolic blood pressure of 90mmHg, it would be best to avoid giving GTN in the first instance.

Question:

A 39-year-old woman presents to the emergency department with a 2-hour history of an occipital headache and neck pain. She has since vomited 3 times and complains of blurred vision. Wearing sunglasses has helped ease the intensity of the headache. There is no past medical history of note and her regular medications consist of over-the-counter vitamins.

On examination, she is afebrile. Her heart rate is 76bpm with a blood pressure of 119/86mmHg. She has a GCS of 15 and is moving all 4 limbs with good power and without any sensory deficit. There are no signs of an acute head injury.

A computed tomography (CT) head is organised that reports a hyperdense signal in the subarachnoid space.

What is the most appropriate initial treatment?

A.Dexamethasone

B.Labetalol

C.Nifedipine

D.Nimodipine

E.Prothrombin complex

Answer:Nimodipine

Explanation:

Nimodipine is used to prevent vasospasm in aneurysmal subarachnoid haemorrhages

Important for meLess important

This patient has a subarachnoid haemorrhage (SAH), a bleed into the subarachnoid space. The most common cause of a SAH is a traumatic bleed following a head injury. However, some cases are spontaneous and these are usually secondary to a ruptured cerebral artery aneurysm. The immediate management of a SAH is an ABCDE approach, with the initial aim to ensure that there is a secure airway. Strict blood pressure control is needed with a target systolic blood pressure preferably below 140mmHg as systolic blood pressure above 150mmHg is associated with re-bleeding. However, a blood pressure that is too low can cause cerebral ischaemia. NICE guidelines recommend the use of nimodipine, a calcium channel blocker that is used to prevent vasospasm secondary to a SAH.

Dexamethasone is given in cases of intracranial bleeding when there is evidence of cerebral oedema and raised intracranial pressure. Symptoms include nausea, vomiting, headache, reduced consciousness and focal neurology including dizziness or ocular palsies. In some cases, brain tissues can become compressed. Cushing’s reflex may be seen where blood pressure rises to maintain cerebral blood flow whilst the heart rate decreases. However, this patient has a normal GCS and no signs of cerebral oedema. Furthermore, dexamethasone is not routinely given in a SAH as per NICE guidelines.

Labetalol is a beta-blocker that is used in the treatment of pre-eclampsia and hypertensive emergencies. It is administered intravenously making it more easily titratable compared to oral antihypertensive medications. However, this patient is not hypertensive and initiating labetalol could induce significant hypotension and cerebral ischaemia.

Nifedipine is a calcium channel blocker used to treat hypertension. Whilst blood pressure control is needed in patients with a SAH, easily titratable anti-hypertensives are used including sodium nitroprusside or labetalol. Adding to this, this patient is not hypertensive, making nifedipine less likely to be the initial treatment of choice.

Prothrombin complex is used to reverse coagulopathy secondary to taking warfarin or other anticoagulants. In contrast, platelets can be considered in patients taking antiplatelet medication such as aspirin or clopidogrel. However, this patient has no history of taking anti-coagulants and therefore prothrombin complex would not be indicated.

Question:

A 6-year-old boy presents to the Emergency Department with a 6-hour history of fever, headache and neck stiffness. Examination identifies marked photophobia, neck stiffness and Kernig's test is positive. A blood glucose level is taken, which is reported as 5.8 mmol/L. A lumbar puncture is performed, which shows:

Cells Polymorphs

Glucose 2.1 mmol/L

What organism is the most likely underlying cause of this boy's presentation?

A.Epstein Barr virus

B.Herpes simplex virus

C.Mycobacterium tuberculosis

D.Staphylococcus aureus

E.Streptococcus pneumoniae

Answer:Streptococcus pneumoniae

Explanation:

In bacterial meningitis, the CSF glucose is typically less than half the serum glucose

Important for meLess important

The correct answer is Streptococcus pneumoniae. This patient is presenting with a triad of meningism (neck stiffness, photophobia and headache) and a lumbar puncture is suggestive of a bacterial cause (cerebrospinal fluid (CSF) glucose less than half that of the serum and polymorphic infiltration). Of the given answers, Streptococcus pneumoniae is the only widely recognised bacterial cause of meningitis that could produce these results and is therefore correct.

Epstein Barr virus is incorrect as the investigation findings are suggestive of a bacterial cause. Viral meningitis would likely present with a normal CSF glucose level and lymphocytes, rather than polymorphs would be observed within the CSF.

Herpes simplex virus is incorrect as this is another viral cause of meningitis. Therefore, this would also produce a normal CSF glucose level and lymphocytes, rather than polymorphs would be observed within the CSF.

Mycobacterium tuberculosis is incorrect as this is the only bacterial cause of meningitis that normally results in lymphocytes, rather than polymorphs in the CSF. This is also unlikely as tuberculosis is not common in developed countries.

Staphylococcus aureus is incorrect as this is rarely a source of bacterial meningitis.

Question:

A 72-year-old woman with a background history of ischaemic cardiomyopathy with moderate left ventricular impairment and atrial fibrillation is admitted due to vomiting from norovirus.

Her bloods from 3 months ago were:

Na+ 135 mmol/L (135 - 145)

K+ 4.2 mmol/L (3.5 - 5.0)

Urea 8.9 mmol/L (2.0 - 7.0)

Creatinine 131 µmol/L (55 - 120)

Her bloods today show:

Na+ 132 mmol/L (135 - 145)

K+ 2.6 mmol/L (3.5 - 5.0)

Urea 9.5 mmol/L (2.0 - 7.0)

Creatinine 145 µmol/L (55 - 120)

Digoxin level 2.9 ng/ml (0.8-2.0)

Which of her regular medications likely contributed to her digoxin toxicity?

A.Ramipril

B.Bendroflumethiazide

C.Aspirin

D.Amlodipine

E.Bisoprolol

Answer:Bendroflumethiazide

Explanation:

Digoxin normally binds to the ATPase pump on the same site as potassium. Hypokalaemia → digoxin more easily bind to the ATPase pump → increased inhibitory effects

Important for meLess important

Hypokalaemia is one of the most common precipitants of digoxin toxicity. Digoxin functions by biding to the sodium-potassium ATPase pump on cardiac myocytes to slow down conduction and therefore slow heart rate. It binds to the same site as the potassium usually would on the ATPase pump. In periods of hypokalaemia, there is less competition for the binding site, resulting in an increased effect of digoxin.

Bendroflumethiazide has caused hyponatraemia and hypokalaemia coupled with vomiting. The renal function is not significantly affected, so is unlikely to be acute kidney injury-related. This hypokalemia has precipitated digoxin toxicity.

Looking at the other options:

Ramipril would cause hyperkalemia. Hyperkalaemia is usually seen as a consequence of digoxin toxicity, not as a cause of it. In addition, a stage 1 acute kidney injury is usually defined as a creatinine increase of >26umol/l, 1.5-1.9x increase in reference creatinine or reduced urine output (<0.5ml/kg/hr for 6 consecutive hours).

Aspirin would not influence the metabolism of digoxin.

Amlodipine would not typically influence digoxin levels. However, other calcium channel blockers such as verapamil and diltiazem are known to reduce digoxin excretion via the kidneys.

Bisoprolol is not known to directly influence digoxin levels. It can sometimes be associated with hyperkalemia, but as described before, this is often a consequence rather than a precipitant of digoxin toxicity.

Question:

A 56-year-old woman presents to the emergency department with chest pain and dyspnoea. This started four hours ago and is present at rest, with the pain worse on breathing in. She was admitted with a pulmonary embolism two years ago and so is concerned she may be having another. She has no other medical history and takes no medication.

Observations:

Pulse: 112 bpm

BP: 128/86 mmHg

Respiratory rate: 22/min

Oxygen saturations: 97% on room air

Temperature: 37.6ºC

Her Wells score is calculated to be 3 and so a D-dimer is taken. There is a delay in the result, and so interim anticoagulation with rivaroxaban is started. The result eventually comes:

D-dimer 210 ng/ml (<400)

What is the most appropriate next action?

A.Consider alternative diagnosis and stop anticoagulation

B.Consider alternative diagnosis, keep patient anticoagulated for two weeks

C.Consider alternative diagnosis, switch to clopidogrel

D.Organise a proximal leg vein ultrasound

E.Organise a CTPA

Answer:Consider alternative diagnosis and stop anticoagulation

Explanation:

Investigating suspected PE: if 2-level PE Wells score is ≤ 4 and D-dimer is negative then stop anticoagulation and consider alternative diagnosis

Important for meLess important

This patient has presented with signs that could be explained by a pulmonary embolism on the background of a significant medical history. However, her Wells score is less than 4 and so a PE is unlikely.

Keeping the patient anticoagulated would be inappropriate as it is not indicated or necessary with VTE being excluded. Bleeding is a risk of anticoagulant therapy and so unnecessary prescription could potentially cause harm.

Clopidogrel, an antiplatelet, is not used in the management of pulmonary embolism. It is primarily used in the secondary prevention of arterial thromboembolic diseases and so is inappropriate to give to a patient with a venous thromboembolic disease.

Organising a proximal leg vein ultrasound would only be appropriate if the patient had presented with features suggestive of deep vein thrombosis, including leg swelling and pain on palpation.

Organising a CTPA would have been appropriate if the D-dimer had returned a positive result. The D-dimer is highly sensitive and so a negative result is typically sufficient to exclude a pulmonary embolism.

Question:

A 24-year-old female presents to her GP with lethargy and dizzy spells. On examination she is noted to have an absent left radial pulse. Blood tests are as follows:

Na+ 136 mmol/l

K+ 4.1 mmol/l

Urea 2.3 mmol/l

Creatinine 77 µmol/l

ESR 66 mm/hr

What is the most likely diagnosis?

A.Turner's syndrome

B.Takayasu's arteritis

C.Kawasaki disease

D.Systemic lupus erythematous

E.Breast carcinoma with local spread

Answer:Takayasu's arteritis

Explanation:

Question:

A 45-year-old who has developed chronic kidney disease secondary to focal segmental glomerulosclerosis is reviewed in the renal clinic. His renal function is deteriorating and the eGFR is currently 15 mL/min/1.73 m². The nephrologist is planning for haemodialysis. What is the preferred method of access for haemodialysis?

A.Arteriovenous fistula

B.Tunelled venous catheter

C.Non-tunelled venous catheter

D.Arteriovenous graft

E.Peritoneal catheter

Answer:Arteriovenous fistula

Explanation:

Arteriovenous fistulas are the preferred method of access for haemodialysis

Important for meLess important

Question:

A 24-year-old woman presents to the emergency department with headache, fever, photophobia and neck stiffness. She has no significant past medical history and is on no regular medications.

Her observations are heart rate 101 beats per minute, blood pressure 125/84 mmHg, respiratory rate 18/minute, oxygen saturations 97% on room air and temperature 38.4ºC.

On examination, there is nuchal rigidity and photophobia. Her Glasgow coma scale is 15/15 and neurological examination is otherwise unremarkable. There is no evidence of rash or genital ulceration.

Lumbar puncture results:

WBC 80/µL (0-5)

WBC type lymphocytes 100%

RBC 8/mm³ (0-10)

Protein 0.48g/L (0.15-0.45)

Glucose 3.6mmol/L (2.6-4.2)

What is the most likely organism responsible for this clinical picture?

A.Coxsackie B virus

B.Streptococcus pneumoniae

C.Varicella-zoster virus

D.Herpes simplex virus (HSV) - 1

E.Herpes simplex virus (HSV) - 2

Answer:Coxsackie B virus

Explanation:

The most common causes of viral meningitis in adults are enteroviruses

Important for meLess important

Coxsackie B virus is correct. The diagnosis is viral meningitis. She presents with fever, headache and neck stiffness and her lumbar puncture result is consistent with viral meningitis (lymphocyte-predominant, mildly elevated protein and normal glucose). The most common cause of viral meningitis is enteroviruses and of the options listed, only Coxsackie B is an enterovirus. Additionally, there are no other discriminating features that might suggest an alternative virus e.g. vesicular eruption in herpes simplex or varicella.

Streptococcus pneumoniae is incorrect . This is a common cause of bacterial meningitis but the history, examination findings and LP results suggest viral meningitis.

Varicella-zoster virus is incorrect. This is another common cause of viral meningitis but in the absence of discriminating clinical information, the most common cause of viral meningitis in adults are enteroviruses.

Herpes simplex virus (HSV) - 1 is incorrect. While it is a possible cause of meningitis, it is more likely to cause encephalitis.

Herpes simplex virus (HSV) - 2 is incorrect. This is another common cause of viral meningitis but it is less common than the enteroviruses. HSV-2 is primarily transmitted sexually and the timing of transmission is unpredictable and it is possible that genital herpes and herpes meningitis can occur years after infection.

Question:

A 48-year-old gentleman was blue lighted to the nearest emergency department with sudden onset right sided weakness, slurred speech and right facial droop. An urgent CT head scan was performed which showed no acute intracranial abnormality. His ECG showed sinus rhythm and an x-ray of his chest showed clear lung fields. He presented within the thrombolysis window and received IV Alteplase. He demonstrated a considerable improvement in his symptoms 24 hours later. His past medical history was nil. What other tests would be important to further investigate the cause of a stroke given his age?

A.MRI brain

B.CT angiogram intracranial

C.Autoimmune and thrombophilia screening

D.72 hour holter analysis

E.Cardiac catheterisation

Answer:Autoimmune and thrombophilia screening

Explanation:

'Young' stroke blood tests include thrombophilia and autoimmune screening - performed in those under 55 with no obvious cause of a stroke

Important for meLess important

Whenever the cause of the stroke is unclear, in a young individual with no known stroke risk factors; a list of screening blood tests can be performed to further investigate other potential causes. This can include tests such as antinuclear antibodies (ANA), antiphospholipid antibodies (APL), Anticardiolipin antibodies (ACL), Lupus anticoagulant (LA), coagulation factors, erythrocyte sedimentation rate (ESR), homocysteine and syphilis serology.

An MRI brain would be something done in the long term in a few months time as an outpatient - given that the patient's symptoms have resolved and would not be that useful in the acute stage.

CT angiogram and cardiac catheterisation would not be required here.

A 72 hour Holter analysis would be again another outpatient investigation that would be considered to further investigate for paroxysmal atrial fibrillation and is typically only performed for either 24 hours or 48 hours.

Question:

A 20-year-old female with known Crohn's disease presents in gastroenterology clinic for review of her management. She is currently being treated with oral prednisolone. She has experienced 3 mild flare ups of her Crohn's disease in the past 12 months, each occurring when oral steroid dose has been tapered. You consider adding azathioprine to her management.

Which of the following should be assessed before commencing azathioprine in this patient?

A.Liver function

B.Thiopurine methyltransferase (TPMT) activity

C.Body mass index (BMI)

D.Renal function

E.Coagulation

Answer:Thiopurine methyltransferase (TPMT) activity

Explanation:

TPMT activity should be assessed before offering azathioprine or mercaptopurine therapy in Crohn's disease

Important for meLess important

Thiopurine methyltransferase (TPMT) is an enzyme involved in the metabolism of azathioprine and mercaptopurine. Some people have a deficiency of TPMT due to genetic mutations, and these people are at a greater risk of experiencing severe side effects from conventional doses of azathioprine or mercaptopurine. TPMT activity should therefore be assessed before offering azathioprine or mercaptopurine therapy. Such medications should not be commenced if TPMT is very low or absent. If TPMT activity is below normal, but not deficient, azathioprine or mercaptopurine can be commenced at a lower dose.

Question:

A 24-year-old woman presents to the emergency department following an overdose. She reports having taken multiple tablets at home but refuses to tell you what the tablets were. She took her overdose approximately 6 hours ago and started having nausea and vomits following this. Two hours before admission, she became short of breath and she noticed a mild ringing in her ear.

Her pupils were of equal and of normal size. She did not note any dry mouth or dry eyes. ECG revealed sinus tachycardia. She was normotensive with a heart rate of 120 beats/minute. Arterial blood gas was performed and the results were as follow:

pH 7.57 7.35-7.45

pO2 13.7 kPa 11-13 kPa

pCO2 3.2 kPa 4.7 - 6.0kPa

HCO3 16mmol/L 22-26

BE -4 -2 - +2

Na+ 137mmol/L 135-145

K+ 3.3mmol/L 3.5-5.0

Cl 97mmol/L 96-106

What is the likely causative medication?

A.Amitriptyline

B.Aspirin

C.Morphine

D.Paracetamol

E.Propranolol

Answer:Aspirin

Explanation:

Salicylate poisoning - raised anion gap metabolic acidosis

Important for meLess important

This is a slightly odd blood gas but the underlying issues can be worked out. A pH of 7.57 indicates an ongoing alkalosis. A low pCO2 accompanying this will indicate a respiratory alkalosis. However, normal bicarbonate is typically associated with a respiratory alkalosis as respiratory alkalosis typically comes on following an acute event. In addition, an isolated respiratory alkalosis will not affect the base excess.

This patient has low bicarbonate along with a negative base excess. This suggests an underlying metabolic acidosis as well. Therefore, the correct interpretation of the blood gas is a predominant respiratory alkalosis with an underlying metabolic acidosis.

Aspirin is a salicylic acid derivative and will cause a salicylate toxidrome in overdoses. Mild cases typically present with nausea and vomiting. This will progress to pyrexia, tachypnoea, tachycardia and tinnitus with more severe overdoses. ABG will show mixed respiratory alkalosis and metabolic acidosis. A raised anion gap will be seen due to circulating salicylic acid in the bloodstream.

Amitriptyline will cause a tricyclic toxidrome. This typically presents with anticholinergic symptoms including dry eyes, dry mouth, urinary retention, flushing and tachycardia. ABG should not show a raised anion gap and tinnitus is not a feature.

Paracetamol overdose tends to be indolent at the beginning of the syndrome with general nausea and vomiting. Right upper quadrant pains can be seen when liver damage occurs. It does not cause the ABG results shown.

Opioid overdose does note present with this toxidrome. It often presents with reduced consciousness and significant drowsiness. Pinpoint pupils will be noted. Significant respiratory depression can give respiratory acidosis.

β-blocker overdose typically causes bradycardia, bronchospasm and hypotension, none of which are noted in this case.

Question:

A 56-year-old woman presents to the GP for investigations of 3 weeks history of dyspnea. She is also complaining of a recent history of paraesthesia in her hands. Her past medical history includes type 1 diabetes and hypothyroidism. She is found to be anaemic and has intrinsic factors antibody.

For her most likely diagnosis, which of the following cancers does she predispose to?

A.Breast carcinoma

B.Gastric carcinoma

C.Lung carcinoma

D.Lymphoma

E.Ovarian carcinoma

Answer:Gastric carcinoma

Explanation:

Pernicious anaemia predisposes to gastric carcinoma

Important for meLess important

Gastric carcinoma is the correct answer. Pernicious anaemia (PA) is a disease in which not enough red blood cells are produced due to a deficiency of vitamin B12. The most common initial symptom is feeling tired. Other symptoms may include shortness of breath and paraesthesia. Individuals with pernicious anaemia have been suggested to have an excess risk of gastric cancer. Such an association is plausible, as hypochlorhydria, as well as chronic inflammation, are among the mechanisms by which H. pylori is thought to cause gastric cancer.

Breast carcinoma is incorrect. The patient does not have any symptoms or signs of breast cancer for example a lump in the breast, dimpling of the skin, nipple discharge It is not associated with pernicious anaemia as presented in this scenario. The patient also does not have any risk factors associated with breast cancer mentioned include hormone replacement therapy during menopause, ionizing radiation, early age at first menstruation, having children late in life or not at all, older age, having a prior history of breast cancer.

Lung carcinoma is incorrect. It is not associated with pernicious anaemia as presented in this scenario. The patient does not have common symptoms such as coughing, haemoptysis, weight loss, shortness of breath, and chest pain. She also does not present with risk factors include smoking, family history, radiation exposure and asbestos.

Lymphoma is incorrect. It is not associated with pernicious anaemia as presented in this scenario. The history is not consistent with the signs and the symptoms including include enlarged lymph nodes, fever, drenching sweats, unintended weight loss, itching, and constantly feeling tired. There is no risk factor mentioned including Epstein–Barr virus, HIV/AIDS, tobacco smoking and family history.

Ovarian carcinoma is incorrect. Symptoms become more noticeable as the cancer progresses. This patient presents 3 weeks from the onset of symptoms which is early for ovarian cancer to be presented. These symptoms may include bloating, pelvic pain, abdominal swelling, and loss of appetite which are not indicated in this case. Risk factors include nulliparity, hormone therapy after menopause, family history. It is usually associated with tumour marker CA125.

Question:

A 45-year-old man is referred to the acute medical unit. He had presented earlier in the day to the GP complaining of ongoing fatigue and polydipsia. A BM (finger-prick glucose) taken in the surgery was 22.3 mmol/l. On examination he is an obese man (BMI 36kg/m2) with a pulse of 84 bpm and blood pressure of 144/84 mmHg. Blood tests reveal the following:

Na+ 140 mmol/l

K+ 3.9 mmol/l

Bicarbonate 23 mmol/l

Urea 5.2 mmol/l

Creatinine 101 µmol/l

Glucose 18.2 mmol/l

You encourage him to lose weight and discuss basic dietary advice. What is the most appropriate initial management?

A.Gliclazide

B.Pioglitazone

C.Exenatide

D.Metformin

E.Commence insulin therapy

Answer:Metformin

Explanation:

Exenatide has a role in obese patients but is not used first-line/

Question:

You see the mother of a 6-month-old baby who was born premature (at 32 weeks) and has recently been discharged from hospital following an admission with 'breathing problems'. Whilst he was in the hospital he was given an injection called palivizumab, however, the mother cannot recall what this medication is for.

Which one of the following best describes this medication and its indication?

A.Synthetic steroid used to treat childhood wheeze

B.Macrolide antibiotic used to treat respiratory syncytial virus (RSV)

C.Monoclonal antibody used to prevent respiratory syncytial virus (RSV)

D.Macrolide antibiotic used to prevent hospital acquired pneumonia

E.Monoclonal antibody used to treat hospital acquired pneumonia

Answer:Monoclonal antibody used to prevent respiratory syncytial virus (RSV)

Explanation:

Palivizumab is a monoclonal antibody which is used to prevent respiratory syncytial virus (RSV) in children who are at increased risk of severe disease.

Those at risk of developing RSV include

Premature infants

Infants with lung or heart abnormalities

Immunocompromised infants

Question:

A 19-year-old man presents to the emergency department with severe unilateral testicular pain and swelling. He is sexually active and does not use protection. On examination, the left testis is swollen and tender and elevation of the testicle does not ease the pain.

What is the most likely cause of this patient's symptoms?

A.Epididymal cyst

B.Epididymitis

C.Hydrocele

D.Testicular torsion

E.Varicocele

Answer:Testicular torsion

Explanation:

In testicular torsion the elevation of the testis does not ease pain compared to epididymitis (Prehn's sign)

Important for meLess important

Testicular torsion is correct. The patient's age and the presentation of severe unilateral pain and swelling are characteristic of testicular torsion. Epididymal cysts, hydroceles and varicoceles are usually painless swellings and are therefore incorrect. Epididymitis presents similarly to torsion, with unilateral testicular pain and swelling and is, therefore, the other potential cause of this patient's symptoms. Elevation of the testis eases epididymitis-associated testicular pain but not pain from testicular torsion, therefore this is likely to be a case of torsion.

Epididymal cyst is incorrect. These are painless swellings.

Epididymitis is incorrect. Elevation of the testis eases the pain of epididymitis, this is known as Prehn's sign. This patient has a negative Prehn's sign thus this option is less likely than testicular torsion. Furthermore, the patient's age being < 20 years and the severity of the pain make torsion more likely.

Hydrocele is incorrect. Hydroceles are painless swellings and thus this is not the right answer.

Varicocele is incorrect. They are usually asymptomatic and do not tend to be painful.

Question:

A 25-year-old man is involved in a road traffic accident. A large lorry collided with another car and he swerved to avoid them, hitting a roadside railing. Ten days after the incident, he continues to have flashbacks, nightmares and is unable to sleep. The man's sister reports he jumps if someone closes a door near him, and he walks around the house in a daze. The man denies chest pain and dizziness.

What is the most likely diagnosis?

A.Acute stress reaction

B.Depression

C.Generalised anxiety disorder

D.Panic disorder

E.Post-traumatic stress disorder

Answer:Acute stress reaction

Explanation:

Acute stress disorder is defined as an acute stress reaction that occurs in the 4 weeks after a traumatic event, as opposed to PTSD which is diagnosed after 4 weeks

Important for meLess important

The correct answer is an acute stress reaction. This is a reaction to a traumatic event within the first 4 weeks. Other features include negative mood, dissociation, and avoidance.

Post-traumatic stress disorder is diagnosed after 4 weeks. The features overlap with an acute stress reaction.

Depression could develop later with depressed mood, fatigue, feelings of worthlessness, insomnia, and hypersomnia.

Generalised anxiety disorder would manifest with excessive worry and other features. There would likely be other somatic symptoms such as chest pains. The diagnosis should be made after a minimum of 6 months. We are given a very clear story over a short period of time here.

Panic disorder is not likely - this is usually associated with palpitations, chest pain, dizziness, and sweating. It often occurs with regular attacks of panic or fear. We are not provided details of episodic phenomena. Panic attacks often occur sporadically.

Question:

A 22-year-old male blood donor is noted to have the following blood results:

Bilirubin 41 µmol/L

ALP 84 U/L

ALT 23 U/L

Albumin 41 g/L

Dipstick urinalysis normal

He has recently complained of coryzal symptoms and a non-productive cough. What is the most likely diagnosis?

A.Gilbert's syndrome

B.Dubin-Johnson syndrome

C.Rotor syndrome

D.Hepatitis C infection

E.Infectious mononucleosis

Answer:Gilbert's syndrome

Explanation:

An isolated rise in bilirubin in response to physiological stress is typical of Gilbert's syndrome

Important for meLess important

An isolated hyperbilirubinaemia in a 22-year-old male is likely to be secondary to Gilbert's syndrome. The normal dipstix urinalysis excludes Dubin-Johnson and Rotor syndrome as these both produce a conjugated bilirubinaemia. Viral infections are common triggers for a rise in the bilirubin in patients with Gilbert's

Question:

An 18-year-old primigravida is booked for induction at 38 weeks due to intrauterine growth restriction. After a short labour, a baby girl is delivered by vaginal delivery. The baby has a low birth weight. On examination, she is noted to have microcephaly, moderate hepatosplenomegaly and a petechial rash. Shortly after admission to the neonatal intensive care unit, she has a seizure.

The mother was well throughout pregnancy, has no past medical history, takes no medications and has had all of her vaccinations.

What infection has the baby likely been exposed to in-utero?

A.Cytomegalovirus

B.Herpes Simplex

C.Parvovirus B19

D.Rubella

E.Varicella Zoster

Answer:Cytomegalovirus

Explanation:

Congenital CMV manifests with hearing loss, low birth weight, petechial rash, microcephaly and seizures

Important for meLess important

Congenital cytomegalovirus is caused by the transmission of cytomegalovirus (CMV) in the prenatal period from the mother to the baby. As in this case, a generalised infection may occur in the infant and be noted at birth. Features include low birth weight, microcephaly, seizures, a petechial rash and hepatosplenomegaly with jaundice. Most infants will survive with supportive care but will go on to have complications such as hearing loss, vision impairment and learning disability. Some infants will not have features of generalised infection at birth but will later have hearing loss and learning disabilities. This infant fits the brief of congenital CMV. CMV infections in adults are often asymptomatic, hence why the mother reports no problems in pregnancy up until intrauterine growth restriction was noted.

Herpes simplex may cause congenital infection if the mother develops herpes (either primary infection or reactivation) during pregnancy. There is no history of this occurring in the mother in the brief. Furthermore, the features are very different from congenital CMV, and include a vesicular rash, very low birth weight, microcephaly, microphthalmia and preterm birth.

If a pregnant woman becomes infected with parvovirus B19 (also known as slapped-cheek disease), consequences to the foetus include hydrops fetalis and sometimes miscarriage or stillbirth. Hydrops fetalis is caused by severe anaemia, in this case, due to a combination of haemolytic anaemia and the virus affecting red blood cell precursors in the infant, and presents with oedema. The oedema is due to high output heart failure. Management is with blood transfusions. Whilst thrombocytopenia may be present in 40%, leading to a petechial rash as in this baby, severe anaemia and oedema are the presiding features, and are not seen in this brief. Hepatomegaly may also be seen, due to its association with haemolytic anaemia, but this is not common. Microcephaly and seizures would not be seen.

Congenital rubella syndrome can develop in infants whose mother contracted rubella during pregnancy, usually within the first trimester. Low birth weight, microcephaly and seizures may be present. There may also be a purpuric rash, similar to the rash in infants with congenital CMV. However, the classic triad of symptoms of congenital rubella syndrome is sensorineural deafness, eye abnormalities (e.g. retinopathy and cataracts) and congenital heart disease (especially pulmonary artery stenosis and patent ductus arteriosus). These features are not described in this infant. Furthermore, if the mother is fully vaccinated as described, she will have been vaccinated against rubella, again making CMV a more likely diagnosis.

Congenital varicella syndrome can develop if a non-immune mother was infected with varicella-zoster in the first or second trimester. Whilst it may also present with microcephaly and seizures, the defining features are hypertrophic scars (rather than a petechial rash), limb defects (such as hypoplasia) and ocular defects (such as cataracts and microphthalmia). This patient does not fit the brief for congenital varicella syndrome. Furthermore, there is no history of the mother developing chickenpox during pregnancy.

Question:

A 33-year-old woman returns from a holiday. On her last day abroad she ate lunch at an unlicensed street food vendor. Eight days after her arrival home she experiences bloating, abdominal pain, and non-bloody diarrhoea and she has noticed her stools are floating in the toilet bowl. The patient's symptoms continue for 9 weeks.

What is the most likely causative pathogen given the patient's symptoms?

A.Entamoeba histolytica

B.Escherichia coli

C.Giardia

D.Salmonella

E.Staphylococcus aureus

Answer:Giardia

Explanation:

Malabsorption can be caused by chronic Giardia infection

Important for meLess important

Giardia is correct. Giardia is a flagellate protozoan transmitted via the faeco-oral route. Giardiasis usually resolves within 2-6 weeks, infection for > 6 weeks is classified as chronic Giardia infection. Giardia infection results in the intestinal malabsorption of various nutrients including vitamin A, B12, iron, zinc and lipids, the latter of which results in the characteristic steatorrhea (lipid-rich, greasy and foul-smelling stools which float in the toilet bowl) seen in giardiasis.

Entamoeba histolytica is incorrect. Entamoeba histolytica is the causative pathogen in amoebiasis. Whilst amoebiasis has a similar incubation period to giardiasis and is also transmitted via the faeco-oral route, malabsorption is not a common feature of amoebiasis.

Escherichia coli is incorrect. E. coli is the most common causative agent of travellers' diarrhoea; however, it does not commonly cause malabsorption as is the case here. Furthermore, the incubation period is shorter than that in this history.

Salmonella is incorrect. Although Salmonella is often transmitted via contaminated food, it does not routinely cause malabsorption. Furthermore, the incubation period is shorter than that in this history.

Staphylococcus aureus is incorrect. Staphylococcus aureus infection does not result in intestinal malabsorption and has a notably short incubation period of 1-6 hours, which does not fit this history.

Question:

A 32-year-old woman presents with a history of painful, regular periods. Since stopping the combined oral contraceptive pill eight-months ago her periods are more painful and heavy. She is upset because she would like to conceive but the pain is limiting intercourse. She would like to know the cause of her symptoms.

On examination, her abdomen is soft and non-tender with no masses, but a bimanual examination pelvic examination is limited due to pain.

What is the gold standard diagnostic test for this woman?

A.CT

B.Laparoscopy

C.MRI

D.Transvaginal and pelvic ultrasound

E.CA125

Answer:Laparoscopy

Explanation:

Laparoscopy is the gold-standard investigation for patients with suspected endometriosis

Important for meLess important

Laparoscopy is the gold-standard investigation for patients with suspected endometriosis. It allows direct visualisation and biopsies of the endometrial deposits.

A CT scan may be used to show endometrial deposits but they are less specific than MRI scans.

Ultrasound can be helpful to show endometriomas but a normal scan does not exclude endometriosis.

CA125 is not used to diagnose endometriosis. A raised serum CA125 may be consistent with endometriosis but a normal result does not exclude it.

Pelvic MRI scans should not be used as the primary investigation for endometriosis. They can be helpful before laparoscopy to assess the extent of deep endometriosis, but laparoscopy remains the gold-standard investigation.

Question:

A 19-year-old man presented to his GP complaining of changes in his behaviour, his speech, and a strange brown ring in both eyes. The GP performed a series of investigations, which revealed a low serum copper and a reduced serum caeruloplasmin.

Which of the following is the most appropriate management for this condition?

A.Aspirin

B.Hydroxychloroquine

C.Penicillamine

D.Penicillin

E.Venesection

Answer:Penicillamine

Explanation:

Treatment for Wilson's disease is currently penicillamine

Important for meLess important

This is a typical history and blood results of Wilson's disease- the copper and caeruloplasmin will be low. The management for Wilson's is penicillamine. There are a few other treatment options being tested, but penicillamine is still first line. Venesection is used in management of haemochromatosis, and hydroxychloroquine is a DMARD most commonly used in lupus.

Question:

A 37-year-old woman with a background of Hashimoto's thyroiditis has been referred to the neurology clinic by her GP. She complains of double vision and difficulty swallowing food and liquids, particularly towards the end of meals. She also mentions feeling particularly weak in her arms and legs after exercising at the gym. On examination there is evidence of diplopia and ptosis. During the consultation it is noted that the patient's voice gets quieter as she talks. The neurologist decides to initiate treatment that will provide initial symptomatic relief.

What is the most appropriate treatment?

A.IV immunoglobulin

B.Plasmapheresis

C.Prednisolone

D.Pyridostigmine

E.Thymectomy

Answer:Pyridostigmine

Explanation:

Pyridostigmine is a long-acting acetylcholinesterase inhibitor that reduces the breakdown of acetylcholine in the neuromuscular junction, temporarily improving symptoms of myasthenia gravis

Important for meLess important

This patient has features consistent with myasthenia gravis. She has a history of other autoimmune disease which is an association. She presents with the characteristic feature of muscle fatigability.

Pyridostigmine will temporarily improve the symptoms of myasthenia gravis and so is the best choice for initial symptomatic relief.

Plasmapheresis and IV immunoglobulin are used to treat myasthenic crisis where there is respiratory muscle weakness. There is no evidence of respiratory muscle compromise in this case.

Immunosuppressive agents such as prednisolone can be used to treat relapses however it may take months of treatment to achieve remission.

Thymectomy would be considered if the disease is not easily controlled by pyridostigmine or there was evidence of a thymoma to prevent local invasion.

Question:

You are working in the urgent care centre, where Sarah, a 46-year-old woman comes to see you with a laceration to her left lower leg. She explains that 3 hours ago she was using a sharp gardening tool to remove weeds in her garden when it slipped and hit deep into her foot.

On examination, there is a 5.5cm laceration on the medial aspect of Sarah's left lower leg which is 3cm deep. There is a lot of soil visible inside the wound.

Sarah is unsure about her tetanus immunisation history and there is no further information about this in her records.

With regards to tetanus prophylaxis, which of the following option is most appropriate to manage Sarah's wound?

A.A decision cannot be made until tetanus immunisation history is confirmed

B.Booster vaccine and tetanus immunoglobulin should be given

C.Booster vaccine should be given

D.No tetanus prophylaxis treatment required

E.Tetanus immunoglobulin should be given

Answer:Booster vaccine and tetanus immunoglobulin should be given

Explanation:

Patients with an uncertain tetanus vaccination history should be given a booster vaccine + immunoglobulin, unless the wound is very minor and < 6 hours old

Important for meLess important

Sarah has a tetanus-prone wound (contaminated with soil), and therefore requires treatment with human tetanus immunoglobulin.

NICE guidelines state:

'If the person is not immunised or the immunisation status is unknown or uncertain, give an immediate dose of vaccine followed, if records confirm the need, by completion of a full five-dose course to ensure future immunity.'

Therefore the correct answer is to give a booster vaccine and tetanus immunoglobulin.

Waiting to confirm the tetanus immunisation history is incorrect as this may be difficult to ascertain and tetanus prophylaxis needs to be administered acutely.

Advising that no tetanus prophylaxis is required is incorrect particularly as this is a tetanus-prone wound and requires both booster vaccine and tetanus immunoglobulin.

Question:

Monica is a 2-month-old baby who was brought in by her mother. She is extremely concerned as her baby is generally unwell. Monica has not been feeding well over the past 24 hours and has been very irritable. Her mother had noted a fever of 38.7ºC this morning and this prompted her to seek medical attention. Her nappies continued to appear wet over this time and her mother noted she had vomited once at home. No other symptoms were noted with no cough.

On examination, Monica's general tone is maintained and she does not appear to display any signs of hypotonia. She is moving all 4 limbs equally. The chest remains clear. An area of non-blanching petechiae was noted.

A lumbar puncture was performed with the following results:

Parameter Value Normal range

White cell count 150 cells <3

Neutrophils 140 cells 0

Lymphocytes 10 cells <22

Protein 1.5g/L <1g/L

CSF: serum glucose ratio 0.2 >=0.6

Given the likely diagnosis, what is the appropriate treatment?

A.Intravenous (IV) aciclovir

B.IV cefotaxime and IV amoxicillin

C.IV cefotaxime

D.Supportive management

E.IV amoxicillin

Answer:IV cefotaxime and IV amoxicillin

Explanation:

Meningitis in children < 3 months: give IV amoxicillin in addition to cefotaxime to cover for Listeria

Important for meLess important

Meningitis in infants <3 months old is difficult to diagnose due to the no-specific presentation in this age group. Most children will present with irritability, general lethargy, poor feeding and fevers. It is possible for seizures to occur, likely due to fevers. The classical symptoms of photophobia and neck stiffness are rare and clinicians should have a high index of suspicion for meningitis in the generally unwell infant.

The presence of the non-blanching petechial rash is concerning and would warrant further investigations with blood tests and a lumbar puncture. The results of the lumbar puncture above points towards a bacterial cause given the raised white cells with predominant neutrophils along with a low glucose ratio.

Typically, cefotaxime/ceftriaxone is given as the treatment of choice but given the child is under 3 months old, amoxicillin is added due to the risk of Listeria infection.

The lumbar puncture results do not support a diagnosis of viral meningitis. This rules out supportive therapy as the correct answer as this will not treat the underlying cause.

IV aciclovir is not typically used to treat viral meningitis as this is normally self-limiting. Aciclovir is more useful in the management of encephalitis.

IV amoxicillin monotherapy should not be utilized unless the organism is confirmed to be Listeria as this will not cover the more common organisms like Strep pneumonia, Neisseria meningitidis and Haemophilus influenza

Question:

What is the most appropriate advice to give a man with regards to alcohol intake?

A.No more than 14 units of alcohol per week. If you do drink as much as 14 units per week, it is best to spread this evenly over 3 days or more

B.No more than 14 units of alcohol per week. Try not to drink on more than 2 days per week

C.No more than 21 units of alcohol per week (and no more than 4 units in any one day)

D.No more than 21 units of alcohol per week

E.No more than 21 units of alcohol per week (and no more than 3 units in any one day)

Answer:No more than 14 units of alcohol per week. If you do drink as much as 14 units per week, it is best to spread this evenly over 3 days or more

Explanation:

Question:

A 65-year-old man comes to see his GP complaining of intense itching after getting out the shower. This started about two months ago and has not got any better. His past medical history is unremarkable except for a deep vein thrombosis in his left leg three years ago and an episode of gout in his right hallux six years ago.

Which of the following conditions is most likely in this patient?

A.Polycythaemia vera

B.Chronic myelogenous leukaemia

C.Primary myelofibrosis

D.Rheumatoid arthritis

E.Systemic lupus erythematosus

Answer:Polycythaemia vera

Explanation:

Polycythaemia vera is a neoplasm of the bone marrow which results in the production of excessive red blood cells. The classic symptom of this condition is intense itching which usually occurs after exposure to hot water or hot and humid weather. It is believed that this is due to abnormal histamine or prostaglandin production.

Due to the excess of red cells, patients who suffer from polycythaemia vera are predisposed to blood clots which could explain the deep vein thrombosis this patient had. Also in polycythaemia vera, roughly 20% of patients will also suffer from gouty arthritis.

Question:

Each one of the following is a feature of Tetralogy of Fallot, except:

A.Pulmonary stenosis

B.Overriding aorta

C.Ventricular septal defect

D.Atrial septal defect

E.Right ventricular hypertrophy

Answer:Atrial septal defect

Explanation:

Question:

A 25-year-old man is seen in the clinic after experiencing 4 unprovoked episodes of staring blankly into space. During these episodes, he is also unresponsive for around 30 seconds before regaining awareness. Before each episode, he feels a rising in his stomach and during them, he smacks his lips. After each one, he feels confused and tired.

He has no other past medical history and there has been no head trauma or illicit drug use. His father has a similar condition characterised by episodes of muscle stiffening and jerking.

What site is most likely to be affected in this patient?

A.Both cerebral hemispheres

B.Frontal lobe

C.Occipital lobe

D.Parietal lobe

E.Temporal lobe

Answer:Temporal lobe

Explanation:

Temporal lobe seizures typically feature epigastric aura and automatisms

Important for meLess important

More than 2 unprovoked episodes of staring blankly into space and automatisms (such as lip smacking) with preceding epigastric aura (such as rising) suggest a diagnosis of focal impaired awareness epilepsy as the patient's symptoms can be localised to a specific region of the brain. His father having a history of tonic-clonic (characterised by muscle stiffness and jerking) epilepsy is a risk factor for its development.

Temporal lobe is correct as seizures occurring here are associated with epigastric auras and automatisms. Other auras may be deja vu, or auditory, gustatory, or olfactory hallucinations. Other automatisms may be grabbing or finger plucking.

Both cerebral hemispheres is incorrect. This may be seen in generalised onset seizures, such as an absence seizure, which can also present with staring blankly into space. However, absence seizures do not have preceding symptoms such as aura (in this case, a preceding feeling of rising in his stomach) and are more commonly seen in children aged 3-10 years old. Up to 95% of patients with absence seizures become seizure-free in adolescence as well, making this diagnosis less likely.

Frontal lobe is incorrect as this is not associated with epigastric aura or automatisms. Patients tend to have head or leg movements and post-ictal weakness (known as Todd's paresis), and a Jacksonian march, where muscle jerking moves proximally from a distal site (e.g. from one's hand moving up their arm).

Occipital lobe is incorrect as this is associated with visual phenomena such as flashes and floaters, and is not associated with epigastric aura and automatisms.

Parietal lobe is incorrect as this is associated with sensory dysfunction such as paraesthesia, and is not associated with epigastric aura and automatisms.

Question:

A 27-year-old woman presents to the emergency department with acute right upper quadrant pain radiating to the right shoulder. Her only medical history includes a preceding 4-week history of lower pelvic pain, dysuria, and abnormal discharge, which is currently being treated. She also recently returned from a holiday in India 9 months ago.

Palpating the right upper quadrant elicits tenderness which does not lead to inspiratory arrest. Her pulse is 85 bpm, her blood pressure is 127/75 mmHg, and her temperature is 38.4ºC. No other abnormalities are found.

What is the most likely diagnosis?

A.Acute cholangitis

B.Acute cholecystitis

C.Acute hepatitis A

D.Fitz-Hugh-Curtis syndrome

E.Mirizzi syndrome

Answer:Fitz-Hugh-Curtis syndrome

Explanation:

Pelvic inflammatory disease may progress to perihepatitis (Fitz-Hugh Curtis Syndrome), characterised by RUQ pain

Important for meLess important

Fitz-Hugh-Curtis syndrome is correct. This patient has features of pelvic inflammatory disease (PID) due to the presence of lower pelvic pain, dysuria, and abnormal discharge. The emergence of right upper quadrant (RUQ) pain that radiates to the shoulder and fever suggests the progression of PID to perihepatitis, known as Fitz-Hugh-Curtis syndrome. This is because pathogens implicated in sexually-transmitted infections (such as Chlamydia or gonorrhoea can thin the cervical mucus, allowing bacteria into the vagina and spread through the lymphatic system, blood, and the peritoneal cavity.

Acute cholangitis is incorrect as this typically presents with a triad of RUQ pain, fever, and jaundice. This patient has no jaundice and the preceding history of symptoms suggesting PID make Fitz-Hugh-Curtis syndrome more likely.

Acute cholecystitis A is incorrect as a key feature suggesting its presence is Murphy's sign (arrest of inspiration on palpating the RUQ, suggesting gallbladder inflammation). The absence of this sign and the preceding history of PID makes this diagnosis less likely.

Acute hepatitis A is incorrect. Although foreign travel can be a risk factor for the development of hepatitis A, patients generally have nausea and/or vomiting, and flu-like symptoms including myalgia and lethargy. Furthermore, hepatitis A has an incubation period of around 2-4 weeks and it is unlikely that this patient would have symptoms so long after returning.

Mirizzi syndrome is incorrect as this describes a complication of gallstones where a gallstone becomes impacted in the cystic duct of the gallbladder, compressing the common hepatic duct. This leads to obstructive jaundice. Since this patient has no jaundice, this diagnosis is less likely,

Question:

A 65-year-old man presents to the emergency department with three days of cough and fever. He has no past medical history. He is a retired roofer.

Observations:

Heart rate 88 beats per minute

Oxygen saturation 96% on room air

Respiratory rate 18/minute

Blood pressure 131/72 mmHg

Temperature 37.8C

The examination is unremarkable.

A chest-x-ray demonstrates multiple calcified plaques in the lower zones but no consolidation.

He is treated with oral antibiotics.

What is the appropriate management of the radiographic findings?

A.Bronchoscopy

B.High resolution CT chest in three months

C.No follow-up required

D.Pleural biopsy

E.Repeat chest-ray in six weeks

Answer:No follow-up required

Explanation:

Pleural plaques are benign and do not undergo malignant change. They, therefore don't require any follow-up.

Important for meLess important

No follow-up required is the correct answer. The patient has an incidental finding of multiple lower zone calcified plaques while being investigated for a lower respiratory tract infection. In the context of his profession as a retired roofer, these are likely to represent pleural plaques as a consequence of asbestos exposure. They are benign and do not require specific follow-up

High resolution CT chest in three months is incorrect. This would be a suitable follow-up for some forms of lung nodules rather than pleural plaques.

Pleural biopsy is incorrect. If mesothelioma was suspected then a pleural biopsy may be indicated. Mesothelioma tends to develop after a long latency in patients exposed to asbestos and has a dismal prognosis. However, it does not present with plaque-like lesions but typically a pleural opacity, reduction in lung volume or pleural effusion.

Bronchoscopy is incorrect. This may be indicated if we suspected lung cancer or atypical infection. However, the patient is well apart from a mild temperature and there are no lesions suspicious of malignancy or chest x-ray findings suggestive of an unusual infection. Therefore there is no indication to carry out a bronchoscopy.

Repeat chest-ray in six weeks is incorrect. This would be suitable if there was chest x-ray evidence of consolidation (to ensure resolution).

Question:

A 1-year-old boy presents with bilious vomiting, abdominal distension and has been constipated since birth and did not pass meconium until he was 3 days old. Height and weight are at the fifth percentile. On examination, the abdomen is distended and a PR examination causes stool ejection. What is the likely diagnosis?

A.Malrotation

B.Duodenal atresia

C.Hirschsprung disease

D.Pyloric stenosis

E.Intussusception

Answer:Hirschsprung disease

Explanation:

Hirschsprung disease is a congenital bowel disease, which is five times more likely to occur in boys than girls. It usually presents with bilious vomiting, abdominal distension, constipation and failure to pass meconium in the first 48 hours. Hirschsprung disease may not present until childhood or adolescence. Colon biopsy demonstrates an aganglionic segment of bowel.

Question:

A 67-year-old female with stable rheumatoid arthritis attends a clinic for her annual review. She reports that she has noticed a loss of sensation in both her hands over the last 4 months and that it has been getting worse. In addition to arthritis, she also has hypertension and diabetes. She is currently taking infliximab, metformin, glipizide, and amlodipine. Her last HbA1c was 53 mmol/mol.

On examination, you note bilateral loss of temperature and pain sensation on the medial aspect of both hands and elbows. Proprioception and vibration sensation are preserved.

What is the most likely diagnosis?

A.Amyotrophy

B.Diabetic neuropathy

C.Mononeuritis multiplex

D.Syringomyelia

E.B12 deficiency

Answer:Syringomyelia

Explanation:

Syringomyelia classically presents with cape-like loss of pain and temperature sensation due to compression of the spinothalamic tract fibres decussating in the anterior white commissure of the spine

Important for meLess important

Although syringomyelia classically presents with cape-like loss of pain and temperature sensation, it can cause the loss of these modalities anywhere depending on its location in the spinal cord.

Diabetic neuropathy refers to various types of nerve damage associated with diabetes mellitus. Symptoms can include motor changes such as weakness; sensory symptoms such as numbness, tingling, or pain; or autonomic changes such as urinary symptoms.

Amyotrophy is a nerve disorder which is a complication of diabetes mellitus. It affects the thighs, hips, buttocks and legs, causing pain and muscle wasting.

B12 deficiency is associated with both peripheral neuropathy and subacute combined degeneration (dorsal column is usually affected = loss of proprioception and vibration sense).

Mononeuritis multiplex is a painful, asymmetrical, asynchronous sensory and motor peripheral neuropathy involving isolated damage to at least 2 separate nerve areas. Multiple nerves in random areas of the body can be affected. Causes include diabetes mellitus, vasculitides, sarcoidosis and rheumatoid arthritis.

Question:

A 27-year-old man presents to the emergency department with confusion and involuntary muscle jerks of the legs. He is too agitated to be able to give a past medical history.

On examination, his heart rate is 150/min, respiratory rate 20/min, blood pressure 147/92mmHg and temperature 37.9 ºC. He looks sweaty, clammy and he has a resting tremor. Cardiovascular examination is unremarkable and a neurological examination shows hyperreflexia.

What is the most likely diagnosis?

A.Benzodiazepines overdose

B.Gamma-hydroxybutyric acid overdose

C.Generalised anxiety disorder

D.Neuroleptic malignant syndrome

E.Serotonin syndrome

Answer:Serotonin syndrome

Explanation:

Serotonin syndrome can present with sweating, tremor, confusion and hyperreflexia

Important for meLess important

The correct answer is serotonin syndrome. This patient is presenting with confusion, myoclonus, tachycardia, tachypnoea, hypertension, fever, sweating and hyperreflexia. These are all classical features seen in serotonin syndrome, usually caused by incorrect use of serotonergic drugs and overactivation of both the peripheral and central 5HT receptors. The symptoms usually belong to the triad of (1) neuromuscular excitation (myoclonus and hyperreflexia), (2) autonomic nervous system excitation (fever and sweating), (3) altered mental state (confusion and agitation).

A gamma-hydroxybutyric acid overdose (more commonly called GBH) causes respiratory depression, rather than excitatory symptoms as in this case, making the diagnosis incorrect.

A benzodiazepines overdose would present with symptoms of excessive sedation, including somnolence, diplopia, impaired motor function, anterograde amnesia, ataxia, hypoxaemia, hypothermia, hypotension and bradycardia. This patient is presenting with excitatory symptoms, making this diagnosis unlikely.

Generalised anxiety disorder usually presents with palpitations, sweating, tremor, mouth dryness or dizziness. This diagnosis could partially explain some symptoms, but it could not explain the myoclonus and hyperreflexia which are caused by the excess in serotonin.

Neuroleptic malignant syndrome is a good differential in a patient with these symptoms and unknown medical history. This syndrome presents in patients taking antipsychotics and has similarities with serotonin syndrome. They both present in young patients with tachycardia and tachypnoea, hypertension, fever. But neuroleptic malignant syndrome causes muscle rigidity rather than myoclonus, and hyporeflexia rather than hyperreflexia.

Question:

A 60-year-old man who is known to have Barrett's oesophagus is reviewed with the results of his surveillance biopsies. These show high-grade dysplasia but no evidence of carcinoma. He is asymptomatic apart from his gastro-oesophageal reflux disease symptoms which are well controlled on high dose proton pump inhibitor therapy. What treatment is he most likely to be offered?

A.Oesophagectomy

B.Continue high-dose proton pump inhibitor therapy

C.Endoscopic mucosal therapy

D.Increase frequency of surveillance endoscopies to every 12 months

E.Helicobacter pylori eradication therapy, regardless of previous status

Answer:Endoscopic mucosal therapy

Explanation:

Dysplasia on biopsy in Barrett's oesophagus requires an endoscopic intervention

Important for meLess important

Question:

A prison GP is bitten by a patient who is known to have hepatitis B. The GP has a documented full history of hepatitis B vaccination and was known to be a responder. What is the most appropriate action to reduce the chance of contracting hepatitis B?

A.Admit for intravenous interferon

B.Give hepatitis B immune globulin

C.Give hepatitis B immune globulin + hepatitis B vaccine booster

D.Give hepatitis B vaccine booster

E.Give oral ribavirin for 4 weeks

Answer:Give hepatitis B vaccine booster

Explanation:

Question:

A 65-year-old female presents to the outpatient clinic complaining of urinary incontinence. She complains of involuntary loss of urine while coughing or laughing. There is no urinary urgency or nocturia. A routine pelvic examination is normal. Despite proper pelvic floor muscle exercises for the past five months, her symptoms have not improved. She doesn't want any surgical procedures.

Which of the following is the best treatment option for this patient?

A.Duloxetine

B.Further pelvic floor muscle training

C.Mirabegron

D.Oxybutynin

E.Retropubic mid-urethral tape procedure

Answer:Duloxetine

Explanation:

Duloxetine may be used in patients with stress incontinence who don't respond to pelvic floor muscle exercises and decline surgical intervention

Important for meLess important

Duloxetine may be used in patients with stress incontinence who don't respond to pelvic floor muscle exercises and decline surgical intervention. Thus, duloxetine is best for this patient.

Antimuscarinic (oxybutynin) and beta-3 agonist (mirabegron) are used if urge incontinence is predominant.

This patient has not improved with pelvic floor muscle training, and so this would not be an appropriate option for the patient.

This patient has rejected surgical procedures (retropubic mid-urethral tape procedure).

Question:

A 64-year-old woman with breast cancer with bony metastases is admitted to your ward after sustained a vertebral fracture after twisting in the seat of her car. This is being managed conservatively by the orthopaedic team.

She also has a past medical history of hypertension, chronic kidney disease stage 4, gastro-oesophageal reflux disease, and type 2 diabetes. She is currently taking amlodipine and omeprazole. Previously she had been on alendronic acid but stopped due to severe reflux.

What is the most appropriate therapy to start?

A.Alendronic acid

B.Cinacalcet

C.Denosumab

D.Hormone-replacement therapy

E.Strontium ranelate

Answer:Denosumab

Explanation:

Bisphosphonates and denosumab can be used to prevent pathological fractures in bone metastases. If the eGFR < 30, denosumab is preferred

Important for meLess important

Bisphosphonates and denosumab can be used to prevent pathological fractures in bone metastases.

Alendronic acid is not appropriate in this case as the patient suffered from quite severe reflux during previous use. Also as the patient has an eGFR<30, denosumab is preferred.

Denosumab is a relatively new treatment for osteoporosis. It is a human monoclonal antibody that prevents the development of osteoclasts by inhibiting RANKL. It is given as a subcutaneous injection. Denosumab is also used for the prevention of skeletal-related events (i.e. pathological fractures) in adults with bone metastases from solid tumours.

Cinacalcet is not used in the management of osteoporosis or pathological fractures. It is licensed for hyperparathyroidism and hypercalcaemia in parathyroid carcinoma. It acts as a calcimimetic.

Hormone-replacement therapy (HRT) does not have a role in this scenario. In general, HRT has an unfavourable risk-benefit ratio in the treatment of osteoporosis in older postmenopausal women.

Strontium ranelate although still found in the BNF, is essentially no longer used due to its adverse effect profile.

Question:

A 21-year-old man collapses whilst playing football with his friends at the weekend. By the time he is brought into the emergency department he is pronounced dead following cardiac arrest despite adequate life support being given. His family cannot understand how this has happened saying that he has always been fit and healthy and was a keen sportsman, they do however note that two other family members have died young in similar circumstances.

Which of the following methods of inheritance is correct for this condition?

A.Autosomal dominant

B.Autosomal recessive

C.X-linked recessive

D.X-linked dominant

E.Mitochondrial

Answer:Autosomal dominant

Explanation:

Asymmetric septal hypertrophy and systolic anterior movement (SAM) of the anterior leaflet of mitral valve on echocardiogram or cMR support HOCM

Important for meLess important

Given the circumstances in which this person has died and the family history, one can infer that hypertrophic cardiomyopathy may be a cause. In hypertrophic cardiomyopathy, the myocardium becomes thickened which can lead to functional impairment of cardiac muscle and sudden death, especially in young athletes.

It can often run in families and familial hypertrophic cardiomyopathy is inherited in an autosomal dominant pattern and is attributed to a mutation in one of the genes that encodes for a sarcomere protein.

Question:

An 18-year-old woman presents to the GP clinic.

She has recently completed a course of cognitive behaviour therapy but is still struggling with persistent symptoms of loss of interest and enjoyment. She would like to try an antidepressant and is commenced on sertraline.

When is the earliest that she should she next be seen by her GP?

A.One week

B.Two weeks

C.Four weeks

D.Three months

E.No routine follow-up required

Answer:One week

Explanation:

Patients ≤ 25 years who have been started on an SSRI should be reviewed after 1 week

Important for meLess important

This woman requires a follow-up appointment, as the use of serotonin-selective reuptake inhibitors in people younger than 25 has been associated with an increased risk of suicidality in the initial period after starting medication. Patients should be screened for clinical worsening, suicidal behaviour or thoughts, or any changes in behaviour. According to NICE Guidelines, monitoring should take place at the earliest one week after SSRI commenced to give time for it to take effect and ensure that early follow up occurs. This is the correct answer.

Two weeks is incorrect. Two weeks is when follow-up should occur after commencing a course of cognitive behavioural therapy.

Four weeks is incorrect. Four weeks is the length of time it takes for an antidepressant to reach full effect after being started, and patients should be informed of this.

Three months is incorrect. This is the interval at which levels of some psychiatric medications such as the mood-stabiliser lithium should be monitored by routine blood tests. SSRIs do not require routine blood test monitoring.

No routine follow up is incorrect. She should be followed up to assess the risk of suicidality which is increased in young people in the early period after starting this medication.

Question:

A 32-year-old nursery teacher complains of progressive hearing loss and tinnitus over the past three months. She denies aural fullness and recent infections. The patient recalls that her mother was diagnosed with a 'hearing problem' in her thirties.

External examination of the ear is normal. Rinne test: bone conduction is louder than air conduction in both ears. Weber test: sound localised to the centre of the forehead.

What is the most likely diagnosis?

A.Acute labyrinthitis

B.Cholesteatoma

C.Meniere's disease

D.Otosclerosis

E.Vestibular schwannoma

Answer:Otosclerosis

Explanation:

Otosclerosis is characterised by conductive hearing loss, tinnitus and positive family history

Important for meLess important

Rinnes test is positive when air conduction is better than bone conduction. This is seen in normal examinations or when patients have sensorineural hearing loss. A negative test signifies conductive hearing loss. This patient has bilateral negative Rinnes test, therefore she is likely to have bilateral conductive hearing loss. The positive family history also suggests otosclerosis as the most likely diagnosis. It is a condition caused by abnormal bone remodelling of the middle ear.

Labyrinthitis is inflammation of the labyrinth. Symptoms include vertigo, hearing loss, and tinnitus. They usually resolve within a week. The symptoms described here have been ongoing for a few months.

Cholesteatoma causes ear infection and discharge, with unilateral conductive hearing loss, instead of bilateral conductive hearing loss seen in otosclerosis.

Meniere's disease is characterized by unilateral sensorineural hearing loss, in which case sound lateralizes towards the contralateral normal ear during the Weber test. The patient also does not have other convincing features of Meniere's disease such as tinnitus, aural fullness, and vertigo attacks. In addition, the positive family history in this stem suggests an inherited disorder such as otosclerosis, whereas most cases of Meniere's disease are sporadic.

Vestibular schwannoma presents as unilateral sensorineural hearing loss. Patients would also have facial nerve palsies, vertigo, and ataxia.

Question:

A 37-year-old pregnant woman has a vaginal swab taken at 35 weeks gestation despite being asymptomatic. She tells you that during her previous pregnancy a bacteria which can cause sepsis in babies was detected on one of her swabs, which is why she needs to be tested again.

The microbiology report contains the following:

Sample: +ve (awaiting sensitivities)

Gram stain: +ve

Morphology: Cocci in chains

Growth requirements: Facultative anaerobe

Which organism is most likely to be present?

A.Neisseria gonorrhoeae

B.Clostridium difficile

C.Streptococcus agalacticae

D.Staphylococcus aureus

E.Staphylococcus epidermis

Answer:Streptococcus agalacticae

Explanation:

Mothers who have had Group B Streptococcus detected during a previous pregnancy should be offered maternal intravenous antibiotic prophylaxis (IAP) OR testing in late pregnancy and then antibiotics if still positive

Important for meLess important

Streptococcus agalacticae is the bacterium which causes Group B Streptococcal disease (GBS), the most common cause of severe infection in neonates. It is a Gram-positive coccus (round-shaped bacterium) which forms chains and is a facultative anaerobe.

GBS can cause pneumonia and meningitis in newborns of colonised mothers, however, adult carriers usually remain asymptomatic. In mothers who have had GBS detected during a previous pregnancy, the Royal College of Obstetricians and Gynaecologists recommend that testing is repeated in subsequent pregnancies, followed by intravenous (IV) antibiotic administration during labour if positive for GBS.

Neisseria gonorrhoea (also known as gonococcus) is a Gram-negative, diplococcus. It is also an obligate aerobe; this means that it needs oxygen to grow, unlike GBS, which as a facultative anaerobe can grow with or without oxygen. Additionally, gonococcal infection in a neonate is associated with conjunctivitis, known as 'ophthalmia neonatorum', rather than neonatal sepsis.

Clostridium difficile (C. diff) is a Gram-positive, anaerobic bacillus (rod-shaped). C. diff is associated with diarrhoeal illness, not neonatal sepsis.

Staphylococcus aureus and Staphylococcus epidermis are Gram-positive cocci and facultative anaerobes like GBS. The cocci of both species, however, tend to form clusters, rather than chains like GBS. Additionally, Staph. species are not routinely screened for during pregnancy, and therefore wouldn't be associated with the history given in this scenario.

Question:

A 71-year-old man presents to his GP with voiding symptoms without storage symptoms. He is diagnosed with benign prostatic hyperplasia. Conservative management fails, and he is trialled on the recommended first-line medication.

However, his symptoms persist. His prostate is estimated to be significantly enlarged at over 30g and his prostate-specific antigen comes back as 2.2 ng/ml. As a result, it is decided he should be prescribed another medication.

What medication is the GP likely to prescribe for this patient?

A.Desmopressin

B.Finasteride

C.Tamsulosin

D.Terazosin

E.Tolterodine

Answer:Finasteride

Explanation:

For patients with BPH, if the prostate is significantly enlarged then 5 alpha-reductase inhibitors should be considered

Important for meLess important

Finasteride. Correct; this is a 5 alpha-reductase inhibitor, which is in the same class of drug as dutasteride. It is used as a second-line drug for benign prostatic hyperplasia (BPH) if an alpha-1-antagonist fails to manage symptoms, and is considered in patients with significantly enlarged prostates.

Desmopressin. This is a later stage drug used for BPH with nocturnal polyuria once other treatments (including a 5 alpha-reductase inhibitor) fail. He is not yet at the stage where this might be necessary.

Tamsulosin. This is an alpha-1-antagonist, the first-line option for BPH. Therefore, this is incorrect, as it is likely the initial drug that failed to manage this man's symptoms.

Terazosin. Incorrect. This is another alpha-blocker like tamsulosin and could be used as a first-line option.

Tolterodine. This is incorrect, as this is an antimuscarinic that would be used in patients with a mixture of voiding and storage symptoms after an alpha-blocker fails. This man only has voiding symptoms, so a 5 alpha-reductase inhibitor would be the better option.

Question:

A 22-year-old male presents to the emergency department with a low grade fever, bilateral ankle pain, left wrist pain and stiffness and a rash with erythematous macules on his palms and right lower leg.

His physical examination showed some reduced extension of the left wrist but was otherwise unremarkable.

Full blood count was taken:

Hb 145 g/L Male: (135-180)

Female: (115 - 160)

Platelets 320 \* 109/L (150 - 400)

WBC 15.2 \* 109/L (4.0 - 11.0)

He had blood cultures taken which subsequently showed a gram negative diplococci.

Out of the options listed, which is the most likely diagnosis?

A.Chlamydia trachomatis

B.Moraxella catarrhalis

C.Neisseria gonorrhoeae

D.Treponema pallidum

E.Trichomonas vaginalis

Answer: Neisseria gonorrhoeae

Explanation:

Disseminated gonococcal infection triad = tenosynovitis, migratory polyarthritis, dermatitis

Important for meLess important

Clinical suspicion of disseminated gonococcal infection should arise in patients presenting with the triad of tenosynovitis, polyarthritis and skin rash. This is known as 'arthritis-dermatitis' syndrome.

Cutaneous lesions are characteristically small purpuric macules on the palms and soles which may develop into vesicopustules.

Asymmetric polyarthritis and tenosynovitis of the small joints are distinctive.

Blood, synovial fluid or skin lesion cultures may reveal the gram negative diplococci Neisseria gonorrhoeae .

Differential diagnoses include reactive arthritis, infective endocarditis and meningococcaemia.

Question:

You are asked to review an 85-year-old man who was admitted 5 days ago with community acquired pneumonia. He has a past medical history of type 2 diabetes mellitus, angina, chronic obstructive pulmonary disease (COPD) and spinal stenosis.

Unfortunately, despite optimal ward-based treatment including IV co-amoxiclav, the patient has continued to deteriorate. He current scores 11 on the Glasgow coma scale. His pupils are 3mm bilaterally and reactive to light. He has been unable to take his morning medications which include morphine sulphate modified release (Zomorph) 30mg twice daily, oramorph 10mg as required, and metoclopramide 10mg three times a day. In the past 24 hours, he has used 4 doses of PRN oramorph.

He is reviewed on the consultant ward round and the decision is made that he should be for end of life care. He is currently comfortable, with no evidence of hallucinations, pruritis or myoclonus. The nurse asks you to convert his medications to a syringe driver.

What will you prescribe?

A.Metoclopramide 30mg s/c + morphine 50mg s/c

B.Metoclopramide 30mg s/c + morphine 100mg s/c

C.Metoclopramide 30mg s/c + morphine 80mg s/c

D.Metoclopramide 30mg s/c + oxycodone 100mg s/c

E.Metoclopramide 30mg s/c + oxycodone 50mg s/c

Answer:Metoclopramide 30mg s/c + morphine 50mg s/c

Explanation:

Divide by two for oral to subcutaneous morphine conversion

Important for meLess important

This question is asking you to convert oral morphine to subcutaneous morphine for use in a syringe driver - also known as a continuous subcutaneous infusion (CSCI).

The first step to calculate doses for use in a CSCI is to calculate the total 24-hour usage of the drug. We are told this patient is taking both zomorph (modified release morphine), and oramorph (immediate release) - we need to include both of these medications in our calculation.

The patient is taking 30mg zomorph twice daily = 60mg/24 hours.

He has also taken 4 doses of 10mg oramorph = 40mg/24 hours.

This gives us a total of 60mg + 40mg = 100mg/24 hours of oral morphine. In order to convert this to subcutaneous morphine, we must divide by two. Therefore the amount of morphine needed in the CSCI is 100mg/2 = 50mg/24 hours.

The patient is comfortable, with no evidence of opioid toxicity, and so there is no indication to change to oxycodone at the moment.

Question:

A 36-year-old G3P2 woman presents to the antenatal clinic inquiring about Down syndrome screening. She is 12+6 weeks pregnant, and has previously had 2 children via caesarean section. Neither of her other children have Down's syndrome but she is concerned about the impact of her increasing age on the chances of her child being born with Down's syndrome. You recommend a number of tests to stratify her risk.

Which tests are you most likely to recommend this woman undergo?

A.Nuchal translucency, α-fetoprotein and β-hCG

B.Nuchal translucency, β-hCG and PAPP-A

C.Ultrasound detecting fetal heart rate, breathing, movement, tone; and amniotic fluid volume

D.α-fetoprotein, unconjugated oestriol and β-hCG

E.α-fetoprotein, unconjugated oestriol, β-hCG and inhibin-A

Answer:Nuchal translucency, β-hCG and PAPP-A

Explanation:

Down's - antenatal screening: Nuchal translucency + B-HCG + pregnancy associated plasma protein A

Important for meLess important

This woman is presenting at 12 weeks gestation for Down syndrome screening. While she is correct that her advancing maternal age places her fetus at increased risk of having Down's syndrome, this will not likely change initial Down syndrome screening. Combined screening is now standard and comprises an ultrasound scan to assess nuchal translucency; and serum testing to measure levels of β-human chorionic gonadotropin (β-hCG) and pregnancy-associated plasma protein A (PAPP-A).

The combined screen can also assess for Edward's (trisomy 18) and Patau (trisomy 13) syndromes.

Nuchal translucency, α-fetoprotein and β-hCG do not comprise the combined antenatal screening for chromosomal disorders.

An ultrasound detecting fetal heart rate, breathing, movement, tone; and amniotic fluid volume is referred to as a 'biophysical profile'. It is an evaluation of fetal wellbeing at a given point in time and is often used to assess the need for rapid induction of labor.

α-fetoprotein, unconjugated oestriol and β-hCG comprises the triple test conducted between 15-20 weeks gestation to assess for Down's syndrome. Either the triple test or the quadruple test (see below) are often offered when women have missed the window for combined antenatal screening.

α-fetoprotein, unconjugated oestriol, β-hCG and inhibin-A comprise the quadruple test, which maybe conducted between 15-20 weeks gestation to assess for Down's syndrome.

Question:

A 68-year-old man presents to the emergency department with a 2-hour history of tearing chest pain. His observations show:

Respiratory rate of 33 breaths/min

Pulse of 153 beats/min

Temperature of 37.2ºC

Blood pressure of 88/68mmHg

Oxygen saturations of 95% on room air

Auscultation of the heart identifies a diastolic murmur, heard loudest over the 2nd intercostal space, right sternal border. A chest x-ray is ordered, which shows a widened mediastinum.

Which of the following investigations would be most suitable for this patient?

A.CT angiography of the chest

B.CT angiography of the chest, abdomen and pelvis

C.MRI of the chest, abdomen and pelvis

D.Transoesophageal echocardiography

E.Transthoracic echocardiography

Answer:Transoesophageal echocardiography

Explanation:

Transoesophageal echocardiography (TOE) may be a useful investigation in clinically unstable patients with a suspected aortic dissection

Important for meLess important

The correct answer is transoesophageal echocardiography (TOE).

Tearing chest pain, a diastolic murmur (suggesting aortic regurgitation) and a widened mediastinum on chest x-ray in a man over 50 suggest ascending aortic dissection. The first-line investigation is CT angiography of the chest, abdomen and pelvis to visualise the extent of the dissection. However, this patient is too haemodynamically unstable for transfer to CT. In this situation, transoesophageal echocardiography can be used.

CT angiography of the chest is incorrect as the patient is too unstable. CT chest alone will also not evaluate the extent of the dissection.

CT angiography of the chest, abdomen and pelvis is incorrect as the patient is too haemodynamically unstable.

MRI of the chest, abdomen and pelvis is incorrect as MRI would is unsuitable as it would take too long in this unstable patient.

Transthoracic echocardiography is incorrect - it can demonstrate an intimal flap but is not the best investigation for aortic dissection.

Question:

A 79-year-old woman presents to the emergency department with severe left iliac fossa pain. She denies any bleeding per rectum, diarrhoea or vomiting. After the appropriate investigations, she is diagnosed with acute diverticulitis and sent home with antibiotics.

After four days, she presents again to the emergency department with the same clinical picture, not having improved with antibiotics. The team decides to admit her.

Which one of the following combinations of drugs is the most appropriate to prescribe her?

A.Intravenous ceftriaxone and metronidazole

B.Intravenous vancomycin and metronidazole

C.Oral ceftriaxone and metronidazole

D.Oral vancomycin and intravenous metronidazole

E.Oral vancomycin and metronidazole

Answer:Intravenous ceftriaxone and metronidazole

Explanation:

Patients with diverticulitis flares can be managed with oral antibiotics at home. If they do not improve within 72 hours, admission to hospital for IV ceftriaxone + metronidazole is indicated

Important for meLess important

The correct answer is intravenous ceftriaxone and metronidazole. Patients with a flare-up of diverticulitis should be managed at home with oral antibiotics, but if their situation does not improve within three days they should be admitted to receive the aforementioned treatment. This patient had been sent home with antibiotics but she is still in pain after four days and the situation seems to be unresolved, prompting admission and intravenous antibiotics.

Intravenous vancomycin and metronidazole are incorrect. It was widely used as a treatment for life-threatening Clostridium difficile infections, but it has been shown to not improve the outcome of the patient. Now the indicated treatment is oral vancomycin and intravenous metronidazole. In this case, the patient has a diagnosed diverticulitis and no signs of Clostridium difficile infection, making this choice incorrect.

Oral ceftriaxone and metronidazole are the wrong options. This is the second-line management for a patient that can manage their flare-up at home. This patient already tried to manage it with oral antibiotics, but she has shown no improvement, making this option incorrect.

Oral vancomycin and intravenous metronidazole is the first-line management suggested for life-threatening Clostridium difficile infections. This patient has a flare-up of diverticulitis, making this choice incorrect.

Oral vancomycin and metronidazole are incorrect. They are used independently, as monotherapy to treat mild and severe infections of Clostridium difficile. They have no role in the treatment of acute flare-ups of diverticulitis.

Question:

A 38-years-old-woman with G4P3 at 39 weeks gestation comes to the labour ward after a spontaneous rupture of membranes. After delivering a healthy child through the vaginal canal, the patient bleeds profusely and becomes hypotensive. The senior doctor decides to do a hysterectomy after failing to control the bleeding. After removing the uterus and the placenta, the pathologist notices that the chorionic villi deeply invade the myometrium but not the perimetrium.

What is the diagnosis?

A.Placenta accreta

B.Placenta increta

C.Placenta percreta

D.Placenta previa

E.Placental abruption

Answer:Placenta increta

Explanation:

Placenta increta - the chorionic villi invade in to the myometrium but not through to the perimetrium

Important for meLess important

Placenta increta is the correct answer. Placenta incerta is abnormal placentation where the chorionic villi invade the myometrium but do not reach the perimetrium. The patient is also at increased risk for placenta increta because of her advanced age and history of multiple pregnancies. The definitive diagnosis of such cases is by pathological studies.

Placenta accreta is an incorrect answer. Although it presents with postpartum haemorrhage like placenta increta, the main difference is the depth of chorionic villi invasion. In placenta increta, chorionic villi attach to the myometrium but do not deeply invade it like in placenta increta.

Placenta percreta is an incorrect answer. Placenta percreta invades all layers of the uterus and sometimes reaches other pelvic organs like the urinary bladder. It has the same presentation as the later two placental pathologies (placenta accreta and increta) but might show symptoms according to the pelvic organs it invades. For example, haematuria if it invades the urinary bladder.

Placenta previa is an incorrect answer. Placenta previa is when the placenta is attached to the lower uterine segment and causes antepartum haemorrhage from 20 weeks of gestation. It is contraindicated to perform vaginal delivery for patients with placenta previa. Hence, this choice is wrong.

Placental abruption is an incorrect answer. It is one of the most common causes of antepartum haemorrhage that needs urgent care. It does not present as a postpartum haemorrhage. Instead, it presents as severe abdominal pain, uterine contractions and vaginal bleeding.

Question:

A 47 year old woman is admitted to the gynaecology ward after the discovery of an ovarian mass on an annual gynaecological checkup. On general examination she is found to have a distended abdomen, with possible ascites, and bilateral pleural effusions. Biopsy of the mass reveals a fibroma.

Given the signs and symptoms, what is the diagnosis?

A.Fitz-Hugh-Curtis syndrome

B.Lung cancer

C.Meig's syndrome

D.Leriche's syndrome

E.Liver failure

Answer:Meig's syndrome

Explanation:

This woman shows all the cardinal signs of Meig's syndrome: Benign ovarian tumour, ascites, and pleural effusion.

Question:

A 26-year-old male patient attends the Emergency Department after falling asleep for 2 hours on a tanning bed.

He has burns covering his anterior chest and anterior abdomen, the anterior of both upper limbs as well as the anterior of both lower limbs. His face and neck were spared.

Approximately what % surface area of his body has been burned?

A.50

B.41

C.45

D.27

E.36

Answer:45

Explanation:

Wallace's Rule of Nine: Each of the following is 9% of the body when calculating surface area % if a burn:

Head + neck, each arm, each anterior part of leg, each posterior part of leg, anterior chest, posterior chest, anterior abdomen, posterior abdomen

Important for meLess important

Anterior left upper limb is half the left upper limb (0.5 x 9) = 4.5%

Anterior right upper limb is half the right upper limb (0.5 x 9) = 4.5%

Anterior abdomen = 9%

Anterior chest = 9%

Anterior right lower limb = 9%

Anterior left lower limb = 9%

Total = 4.5 + 4.5 + 9 + 9 + 9 + 9 = 45%

Question:

A 42-year-old dentist presents with persistent lethargy. Routine bloods show abnormal liver function tests so a hepatitis screen is sent. The results are shown below:

Anti-HAV IgG negative

HBsAg negative

Anti-HBs positive

Anti-HBc negative

Anti-HCV positive

What do these results most likely demonstrate?

A.Hepatitis B infection

B.Hepatitis C infection

C.Previous vaccination to hepatitis B and C

D.Hepatitis C infection with previous hepatitis B vaccination

E.Hepatitis B and C infection

Answer:Hepatitis C infection with previous hepatitis B vaccination

Explanation:

Given the deranged liver function tests these results most likely indicate previous hepatitis B vaccination with active hepatitis C infection. However, around 15% of patients exposed to the hepatitis C virus clear the infection. It would therefore be necessary to perform a HCV PCR to see if the virus is still present.

There is currently no vaccination for hepatitis C.

Interpreting hepatitis B serology:

surface antigen (HBsAg) is the first marker to appear and causes the production of anti-HBs

HBsAg normally implies acute disease (present for 1-6 months)

if HBsAg is present for > 6 months then this implies chronic disease (i.e. Infective)

Anti-HBs implies immunity (either exposure or immunisation). It is negative in chronic disease

Anti-HBc implies previous (or current) infection. IgM anti-HBc appears during acute or recent hepatitis B infection and is present for about 6 months

HbeAg results from breakdown of core antigen from infected liver cells as is therefore a marker of infectivity

Question:

Which class of drug have the Medicines and Healthcare products Regulatory Agency warned may be associated with an increased risk of venous thromboembolism in elderly patients?

A.Tricyclic antidepressants

B.5HT3 antagonists

C.Third generation cephalosporins

D.Benzodiazepines

E.Atypical antipsychotics

Answer:Atypical antipsychotics

Explanation:

Antipsychotics in the elderly - increased risk of stroke and VTE

Important for meLess important

Question:

A 19-year-old, known type 1 diabetic, attends the emergency department with diabetic ketoacidosis. 1 litre of 0.9% saline has been given and you are asked to set up an insulin infusion for the patient. What is the correct rate of insulin you should prescribe according to current NICE guidelines?

A.0.01 unit/kg/hr

B.1 unit/kg/hr

C.0.5 unit/kg/hr

D.5 unit/kg/hr

E.0.1 unit/kg/hr

Answer:0.1 unit/kg/hr

Explanation:

Diabetic ketoacidosis: the IV insulin infusion should be started at 0.1 unit/kg/hour

Important for meLess important

According to current NICE guidelines on the management of DKA, the infusion of insulin should be started at 0.1 unit/kg/hr.

You can find the guidelines here:

https://www.diabetes.org.uk/Documents/About%20Us/Our%20views/Care%20recs/Joint%20British%20Diabetes%20Societies%20Inpatient%20Care%20Group%20-%20The%20Management%20of%20Diabetic%20Ketoacidosis%20in%20Adults%20-%20Pathway%20Poster.pdf

Question:

A 41-year-old complains of some difficulties with his hearing which have got gradually worse over the past few weeks. An audiogram is arranged:

What does the audiogram show?

A.Right sensorineural hearing loss

B.Right conductive hearing loss

C.Bilateral mixed hearing loss

D.Right mixed hearing loss

E.Spurious results - need to repeat

Answer:Right conductive hearing loss

Explanation:

Question:

You are asked to assess a 20-year-old woman who has presented with new breathlessness. She denies cough, haemoptysis or chest pain but does have symptoms of a cold for which she has spent the last 3 days in bed. She has a history of panic disorder and currently looks very anxious. She takes the combined oral contraceptive pill but no other medication.

You examine her and find:

Respiratory rate of 24 breaths per minute.

Heart rate of 110 beats per minute.

Oxygen saturations of 97% on air.

Blood pressure of 110/70 mmHg.

Temperature of 36.8ºC.

Chest sounds clear.

No clinical signs of deep vein thrombosis.

A chest x-ray is normal and an ECG shows sinus tachycardia.

What would be the most appropriate management?

A.Discharge with a course of oral steroids

B.Enquire gently about current stressors and discuss relaxation techniques

C.Perform a D-dimer

D.Start antibiotics for a chest infection and admit for observation

E.Teach the patient how to do a peak flow diary and arrange follow-up with her GP

Answer:Perform a D-dimer

Explanation:

Tachycardia and tachypnoea with no signs: think PE

Important for meLess important

This patient has at least two risk factors for pulmonary embolism, in that she takes the combined oral contraceptive pill and has had a recent period of bed rest. Breathlessness with tachycardia and tachypnoea with no alternative causes suggested by ECG or chest x-ray is suggestive of pulmonary embolism and this needs to be ruled out. A D-dimer would be an appropriate test to further investigate pulmonary embolism. If this is raised, it would increase suspicion of pulmonary embolism.

Regardless of the patient's history, pulmonary embolism must be ruled out before these symptoms can be attributed to anxiety. Discussing relaxation techniques is therefore inappropriate management.

The chest x-ray is normal and the history is not indicative of chest infection. Antibiotics should not be started as management, especially without considering pulmonary embolism

There is nothing in the history to suggest underlying asthma as the cause of this patient's acute breathlessness. Discharge with steroids is therefore inappropriate.

As above, discharge with a peak flow diary is inappropriate as the history is not indicative of asthma and it does not deal with the immediate presentation.

Question:

A middle aged lady is brought to the clinic by her husband who has noted a change in her appearance. She finds removal of rings difficult, her shoe size has changed and photographs show a marked change in her appearance. Which of the following is most likely to be identified on neurological examination?

A.Bi nasal hemianopia

B.Bi temporal hemianopia

C.Inferior quadrantanopia

D.Homonymous hemianopia

E.Unilateral loss of vision

Answer:Bi temporal hemianopia

Explanation:

The patient is most likely to have developed acromegaly and as a pituitary lesion is likely to be present compression of the optic chiasm may occur.

Question:

A 34-year-old man with a long history of back pain asks you to have a look at his back. His wife has noticed a rash.

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What is the most likely diagnosis?

A.Pityriasis rosea

B.Erythema multiforme

C.Erythema ab igne

D.Pityriasis versicolor

E.Cold urticaria

Answer:Erythema ab igne

Explanation:

This is a typical erythema ab igne rash. He may have been applying a hot water bottle to his lower back to try and relieve the pain.

Question:

A 28-year-old woman who is 32 weeks pregnant presents with itch.

On examination her abdomen is non tender with the uterus an appropriate size for her gestation. There is no visible rash, although she is mildly jaundiced. Her heart rate is 74/min, blood pressure 129/62mmHg, respiratory rate 20/min, oxygen saturations are 98% in air, temperature 36.8°C.

A set of blood results reveal:

Hb 110 g/l Na+ 139 mmol/l Bilirubin 54 µmol/l

Platelets 243 109/l K+ 4.1 mmol/l ALP 353 u/l

WBC 8.2 109/l Urea 4.6 mmol/l ALT 84 u/l

Neuts 5.7 109/l Creatinine 74 µmol/l γGT 207 u/l

Lymphs 1.8 \* 109/l Albumin 34 g/l

What is the most likely cause of her symptoms?

A.Intrahepatic cholestasis of pregnancy

B.HELLP syndrome

C.Pre-eclampsia

D.Acute fatty liver of pregnancy

E.Biliary colic

Answer:Intrahepatic cholestasis of pregnancy

Explanation:

The answer here is intrahepatic cholestasis of pregnancy.

This is a common cause of itch in the third trimester of pregnancy. It will give a cholestatic picture of liver function tests (LFTs) with a high ALP and GGT, with a lesser rise in ALT. Patients may also be jaundiced with right upper quadrant pain and steatorrhoea. Ursodeoxycholic acid is a common treatment.

The cholestatic LFTs could indicate biliary colic, however the absence of abdominal pain here makes it very unlikely.

Acute fatty liver of pregnancy also occurs in the third term of pregnancy but a hepatic picture would be expected on LFTs, with a rise in ALT/AST greater than that of ALP, a raised white cell count and potential clotting abnormalities. This condition is rare and patients are likely to be unwell with nausea, vomiting, jaundice and possible encephalopathy.

In HELLP syndrome you would see a haemolytic anaemia, the mild anaemia seen here does not correlate with this and also low platelets not seen here.

This lady is not hypertensive and does not have any other features of pre-eclampsia so this is unlikely. In late pre-eclampsia a hepatic derangement of LFTs might be seen.

Question:

A 25-year-old man presents with two day history of fever and arthralgia. On examination the following rash is seen:

What is the most likely diagnosis?

A.Legionella

B.Leptospirosis

C.Lyme disease

D.Actinomycosis

E.Rheumatic fever

Answer:Lyme disease

Explanation:

Erythema chronicum migrans is an early feature of Lyme disease

Question:

A 4-year-old boy is brought to the emergency surgery with a fever and a blotchy rash. His mother says the rash was initially just behind his ears but is now all over his body. On examination, you also noticed clusters of white lesions on the buccal mucosa. The child has not been vaccinated.

What complication is this child at risk of?

A.Coronary artery aneurysm

B.Orchitis

C.Otitis externa

D.Pneumonia

E.Ramsay-Hunt syndrome

Answer:Pneumonia

Explanation:

Measles complication - pneumonia

Important for meLess important

This child has measles. Pneumonia is a complication of measles and is the most common cause of death. It occurs when the measles virus affects the lower respiratory tract epithelium, destroying local immunity within the lungs.

The most common complication of measles is otitis media. Other complications of measles include encephalitis, subacute sclerosing panencephalitis, keratoconjunctivitis, corneal ulceration, diarrhoea, increased incidence of appendicitis, and myocarditis. Rest, fluids, and analgesia are recommended to treat measles.

The local Health Protection Team (HPT) must be informed and school/work avoided for 4 days after the initial development of the rash.

Orchitis is a complication of mumps, along with oophoritis, pancreatitis, and viral meningitis. Mumps presents with swelling of the parotid glands, a high temperature, headache, and general malaise.

Coronary artery aneurysm is a complication of Kawasaki disease, not measles. Kawasaki disease presents with a high temperature, rash, conjunctival injection, red, dry, and cracked hands, feet, and lips, and swollen lymph glands.

Otitis externa is incorrect. Otitis media, not otitis externa, is a complication of measles.

Ramsay-Hunt syndrome is incorrect. This occurs when the varicella-zoster virus affects the facial nerve and is a complication of shingles. It presents with a unilateral painful vesicular rash around the ear and weakness of the muscles supplied by the facial nerve. It is treated with antivirals and steroids.

Question:

A 67-year-old woman attends your GP surgery complaining of three episodes of postmenopausal bleeding in the past month, which she describes as spotting. She went through the menopause 10 years ago and has had no bleeding until this episode. She took hormone replacement therapy for five years. You perform an abdominal exam, which is unremarkable and a vaginal examination, which is normal apart from some vaginal dryness.

What is the investigation you are going to perform first?

A.Abdominal ultrasound scan

B.Trans-vaginal ultrasound scan

C.Smear test

D.Colposcopy

E.Hysteroscopy

Answer:Trans-vaginal ultrasound scan

Explanation:

Endometrial cancer is a common cancer in postmenopausal women and it is important to rule this out in all women that present with post-menopausal bleeding.

Using hormone replacement therapy is a risk factor along with:

Nulliparity

Late menopause

Early menses

Obesity

Diabetes

Polycystic ovarian syndrome

Family history

The first step in the investigation of possible endometrial cancer is to perform a trans-vaginal ultrasound scan to measure the endometrial thickness. Different hospitals have different cut-offs for endometrial thickness and further investigation. If the endometrial lining is thickened then a hysteroscopy will be preformed and an endometrial biopsy taken.

Treatment for endometrial cancer is usually laparoscopic hysterectomy with bilateral salpingo-oophorectomy, with or without radiotherapy.

Question:

A 55-year-old man is seen in the respiratory clinic. He describes progressively worse shortness of breath, that is worse when walking, and a dry cough. On examination he has bibasal crackles and there is evidence of finger clubbing. Spirometry is done, which shows a clearly restrictive pattern. He is previously fit and well, and has worked as a gardener all his life.

What is the best investigation for your most likely diagnosis?

A.Bronchoscopy

B.Chest x-ray

C.High resolution CT

D.MRI chest

E.Sputum culture

Answer:High resolution CT

Explanation:

In idiopathic pulmonary fibrosis, high resolution CT is the investigation of choice

Important for meLess important

This is a typical history of idiopathic pulmonary fibrosis- a man 50-70, progressive exertional dyspnoea, dry cough, finger clubbing, bilateral basal crackles, and a restrictive lung pattern. A chest x-ray will show interstitial shadowing, and a high resolution CT will show 'honeycomb' lungs.

Question:

A 28-year-old woman has a routine appointment in your morning GP surgery as she has just found out she is 6 weeks pregnant. She would like some help with smoking cessation during her pregnancy and to discuss treatment options. Currently, she smokes 10 cigarettes a day. Due to her busy schedule, she doesn't think she would be able to make it to regular meetings.

What is the most appropriate smoking cessation treatment to offer her?

A.Bupropion

B.Stop smoking clinic referral

C.Electronic cigarettes

D.Nicotine replacement therapy

E.Varenicline

Answer:Nicotine replacement therapy

Explanation:

Pregnant women who smoke: nicotine replacement therapy should be offered, varenicline and bupropion are contraindicated

Important for meLess important

Bupropion and varenicline are contraindicated in women who are pregnant or breastfeeding and should not be offered to this patient.

A stop smoking clinic referral would be appropriate, but this patient has informed you that it would be difficult for her to attend regular meetings.

E-cigarettes should not be routinely advised, as the effects of the e-cigarette vapour on the foetus are unknown. However NICE recommends not discouraging a woman if they are already successfully using e-cigarettes to stop smoking.

Nicotine replacement therapy is the only treatment licensed for smoking cessation in pregnancy.

Question:

Which one of the following antibiotics is most likely to cause pseudomembranous colitis?

A.Ceftriaxone

B.Erythromycin

C.Gentamicin

D.Trimethoprim

E.Piperacillin-tazobactam

Answer:Ceftriaxone

Explanation:

Cephalosporins, not just clindamycin, are strongly linked to C.difficile

Important for meLess important

Question:

A 65-year-old woman is presenting to the emergency department with sustained palpitations. She has a past medical history of long QT syndrome and COPD and is currently on inhaled triple therapy.

These are her observations:

Heart rate 200bpm

Resp. rate 20/min

Sa)2 96%

Blood pressure 110/75mmHg

Capillary refill time <1 sec

Temperature 37.2ºC

This is her current ECG:

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What is the next best step in the patient's management?

A.Administer 1 synchronised DC shock

B.Administer 1 unsynchronised DC shock

C.Administer IV amiodarone

D.Administer IV magnesium sulphate

E.Stop the inhaled triple therapy

Answer:Administer IV magnesium sulphate

Explanation:

The above ECG shows broad complex tachycardia at approximately 200 beats per minute. It is characteristic of ventricular tachycardia. At the beginning and end of the ECG trace, the amplitudes of the QRS complexes differ and are characterised as being polymorphic. This pattern is known as Torsades de Pointes (TdP). However, in the middle, the QRS complex amplitudes are similar and therefore characterised as monomorphic.

Administer IV magnesium sulphate is the correct answer. The ECG in the vignette shows a polymorphic broad complex tachycardia. As the QRS complexes are broad, the tachycardia originates below the AV node and is ventricular tachycardia. The ECG is most consistent TdP. TdP is often short-lived and self-terminating; however, it can be associated with haemodynamic instability and collapse. IV magnesium sulphate is the first-line pharmacological treatment option for sustained TdP and is shown to stabilise the cardiac membrane.

Administer 1 synchronised DC shock is incorrect. This may be considered if the TdP is associated with haemodynamic instability (hypotension) with a palpable central pulse. This is unnecessary as the patient in the vignette maintains her blood pressure.

Administer 1 unsynchronised DC shock (defibrillation) is incorrect. This may be considered if the TdP progresses to ventricular fibrillation or is pulseless TdP. This is unnecessary as the patient in the vignette is stable and has no evidence of ventricular fibrillation.

Administer IV amiodarone is incorrect. This is considered adjunctive therapy in the management of ventricular tachycardias. Although amiodarone is an effective anti-arrhythmic drug, it is not recommended for treating TdP as it may further prolong the QT interval.

Stop the inhaled triple therapy is incorrect. There is no association between inhaled triple therapy and the development of TdP. Therefore, there is no justification for stopping this medication.

Question:

A 32-year-old woman is brought in to the emergency department having a seizure. She has a history of epilepsy and takes carbamazepine. However, her friend tells you she was at a party drinking alcohol last night and it is unclear if she has taken her medication today.

She has been having a tonic-clonic seizure despite receiving buccal midazolam at home and 10mg rectal diazepam in the ambulance. Once IV access is established IV lorazepam is started in the department. Unfortunately, she continues to seize at 35 minutes and is in status epilepticus.

What would be the most appropriate next step in management?

A.IV Carbamazepine

B.IV Phenytoin

C.IV Propofol

D.IV Sodium valproate

E.IV Thiamine

Answer:IV Phenytoin

Explanation:

In status epilepticus, a phenytoin infusion should be given if not responding to benzodiazepines

Important for meLess important

The patient is in status epilepticus and has not responded to benzodiazepines. When a seizure continues for longer than 25 minutes a phenytoin infusion should be initiated and intensive care should be contacted.

Carbamazepine is the drug of choice for simple and complex focal seizures and can be used for generalised tonic clinic seizures, but it is not used in the treatment of status epilepticus.

Propofol can be used in intensive care if phenytoin fails to control the seizure at 45minutes.

Sodium valproate is the first-line treatment for newly diagnosed generalised tonic-clonic seizures, but it isn't used in the acute treatment of status epilepticus.

Thiamine should be considered if a seizure is believed to be related to underlying alcohol abuse.

Question:

A 30-year-old woman, para 2+0, is in the second stage of labour and has just delivered the anterior shoulder. She has opted for active management during the third stage of her labour. She had mild gestational hypertension during pregnancy with a recent blood pressure recording of 142/91 mmHg. What drug should now be administered?

A.Oxytocin

B.Oxytocin plus ergometrine maleate

C.Misoprostol

D.No drugs administered for active management

E.Ergometrine maleate

Answer:Oxytocin

Explanation:

The third stage of labour is measured from the birth of the baby to the expulsion of the placenta and membranes. Active management of this stage is recommended in order to reduce post-partum haemorrhage (PPH) and the need for blood transfusion post delivery.

Active management lasts less than 30 minutes and involves the following:

Uterotonic drugs

Deferred clamping and cutting of cord, over 1 minute after delivery but less then 5 minutes

Controlled cord traction after signs of placental separation

Guidelines suggest the use of 10 IU oxytocin by IM injection to reduce the risk of PPH and for active management of the third stage of labour. This is given after delivery of the anterior shoulder.

Ergometrine should not be given in the presence of hypertension. Also oxytocin causes less nausea and vomiting.

References: BNF - Obstetrics, prostaglandins and oxytocics

Intrapartum care for healthy women and babies http://www.nice.org.uk/guidance/cg190

Question:

A 20-year-old man is brought to the emergency department by his friends 40 minutes after being hit in the head during a collision in rugby. He did not lose consciousness, has had no problems with memory before or after the injury, and has not had any seizures. Since the injury, he has vomited twice but does not currently feel nauseous. The patient has no past medical history.

He obeys commands, is orientated, and his eye movements are spontaneous. There is no bruising or fluid leaking from the ear or nose.

No delays in investigations are anticipated.

What is the most appropriate next step?

A.Admit and arrange neurological observations

B.Arrange CT head within 1 hour

C.Arrange CT head within 4 hours

D.Arrange CT head within 8 hours

E.Immediately refer to neurosurgery

Answer:Arrange CT head within 1 hour

Explanation:

Following a head injury, more than 1 episode of vomiting is an indication for a CT head within 1 hour

Important for meLess important

Arrange CT head within 1 hour is correct as although this patient has a Glasgow coma score of 15 and no features such as seizures or focal neurological defects, this patient has had more than 1 episode of vomiting following his head injury. This is because persistent vomiting following a head injury has been associated with an abnormal CT head scan in up to nearly half of cases of head injury and suggests possible neurological complications developing such as intracranial bleeds which can often initially manifest as vomiting.

Admit and arrange neurological observations is incorrect as this would be appropriate if the CT head could not be done due to equipment failure. There is no mention of this in the question.

Arrange CT head within 4 hours is incorrect as none of the timeframes for CT head scans in cases of head injury use 4 hours as a target time. This patient has had more than 1 episode of vomiting and therefore should have a CT head within 1 hour as mentioned above to assess for underlying neurological complications such as intracranial bleeds which can often initially manifest as vomiting.

Arrange CT head within 8 hours is incorrect as this patient has had more than one episode of vomiting. He should be offered a CT head within 1 hour as mentioned above to assess for the development of neurological complications such as intracranial bleeds which can often initially manifest as vomiting.

Immediately refer to neurosurgery is incorrect. NICE recommends neurosurgical input for head injuries should be sought if patients have significant abnormalities on imaging or other features such as persisting coma, unexplained confusion, deterioration of a patient's Glasgow coma scale, seizures without recovery, progressive focal neurological signs, cerebrospinal fluid leaks, or definite or suspected penetrating injury/fracture. None of these features applies to this patient and they have not yet had any imaging. Therefore, a CT head within 1 hour should be done first.

Question:

A 30 year old type 2 diabetic presents to the diabetics clinic advising that she wishes to become pregnant. The patient normally has good glycaemic control and is currently being treated with metformin and gliclazide. What advice should you give her about potential changes to her medication during pregnancy?

A.Patient may continue on metformin but gliclazide must be stopped

B.Patient can continue on both medications

C.Patient may continue on gliclazide but metformin must be stopped

D.Both drugs must be stopped and the patient must be switched to insulin

E.Both drugs must be stopped and the patient must be switched to liraglutide

Answer:Patient may continue on metformin but gliclazide must be stopped

Explanation:

The correct answer is that the patient may be continued on metformin but that the gliclazide must be stopped. In the management of type 2 diabetes in pregnancy 'women with pre-existing diabetes can be treated with metformin, either alone or in combination with insulin'. While it is likely that the patient will be required to switch to insulin it is not an absolute requirement. Both gliclazide and liraglutide are contraindicated in pregnancy.

Source: BNF (https://www.evidence.nhs.uk/formulary/bnf/current/6-endocrine-system/61-drugs-used-in-diabetes/612-antidiabetic-drugs

Question:

A 26-year-old man presents to his general practitioner complaining of a painless mass that he has felt on his right testicle whilst in the shower. Aside from this, the patient has no other symptoms or family history of note. On examination, a hard nodule is identified on his right testicular which does not trans-illuminate. An ultrasound is performed to look for the presence of a testicular mass and the patient is eventually referred for an inguinal orchiectomy for a non-invasive stage 1 non-seminoma germ cell testicular tumour. The patient also tells you that his father passed away from pancreatic cancer 2 years ago.

Given the information above, which of the following markers would we expect to be raised in this patient?

A.AFP

B.Gamma-GT

C.PSA

D.CA15-3

E.CA19-9

Answer:AFP

Explanation:

Non-seminoma germ cell testicular tumours (e.g. teratomas) are associated with raised hCG and AFP

Important for meLess important

Alpha-fetoprotein (AFP) is the correct answer. The AFP levels are commonly elevated in the non-seminoma germ cell testicular tumours such as teratomas, yolk sac tumours, embryonal carcinomas, or combined tumours. Pure seminomas are not associated with elevated AFP levels. HCG can also be elevated in non-seminoma germ cell testicular tumours, but it can also be elevated in 20% of seminomas.

Serum gamma-glutamyl transpeptidase (gamma-GT) is not the correct answer. Gamma-GT is elevated in 1/3 of cases of seminoma. As we are dealing with a non-seminoma germ cell testicular tumour, this is not the marker we would expect to rise.

PSA is incorrect here. Prostate-specific antigen is a marker for prostate cancer. It is not raised in testicular cancer.

CA15-3 is also an incorrect option. Cancer antigen 15-3 is produced by the glandular cells of the breast and is often raised in breast cancer.

CA19-9 is incorrect. High levels of cancer antigen 19-9 can be a sign of pancreatic cancer and not testicular cancer.

Question:

A 67-year-old man with a history of Parkinson's disease presents due to the development of an itchy, red rash on his neck, behind his ears and around the nasolabial folds. He had a similar flare up last winter but did not seek medical attention. What is the most likely diagnosis?

A.Levodopa associated dermatitis

B.Seborrhoeic dermatitis

C.Flexural psoriasis

D.Acne rosacea

E.Fixed drug reaction to ropinirole

Answer:Seborrhoeic dermatitis

Explanation:

Parkinson's disease is associated with seborrhoeic dermatitis

Important for meLess important

Seborrhoeic dermatitis is more common in patients with Parkinson's disease

Question:

You are seeing a 38-year-old female patient in your morning clinic who complains of persistent vertigo associated with some nausea, but no vomiting.

This started 16 days ago following a 'nasty cold' and seems fairly constant. She has not noticed any other symptoms. She had spoken to a pharmacist who gave her 3 days of prochlorperazine. Unfortunately, her symptoms have not improved.

She has no significant past medical history and is a non-smoker. There is no significant family history. She takes no regular medication.

On examination, she has normal hearing, normal upper and lower limb power and sensation as well as normal reflexes. Her gait is normal. You do note marked horizontal nystagmus, but normal pupillary reflexes.

What would be the most appropriate next step?

A.Offer her a prolonged course of prochlorperazine

B.Administer a one-off dose of intramuscular prochlorperazine

C.Refer her urgently to a balance specialist for vestibular rehabilitation

D.Refer for same-day assessment by the stroke team

E.Perform the Epley manoeuvre

Answer:Refer her urgently to a balance specialist for vestibular rehabilitation

Explanation:

Vestibular rehabilitation exercises are the preferred treatment for chronic symptoms in vestibular neuronitis

Important for meLess important

The correct answer is to 'refer her urgently to a balance specialist for vestibular rehabilitation'.

The history is suggestive of vestibular neuronitis, a cause of vertigo that can develop following a viral infection. Horizontal nystagmus is commonly seen with this. Symptoms usually settle over several weeks, even if no treatment is given.

However, as this patient has persistent symptoms for more than 1 week, NICE recommends an urgent referral to a balance specialist (this may be an audiovestibular physician or neurologist — depending on local protocols) for further assessment and consideration of vestibular rehabilitation.

NICE recommends a very short course (up to 3 days) of prochlorperazine, or an antihistamine to alleviate less severe nausea, vomiting, and vertigo. Unfortunately, this patient has exhausted this option and it would not be appropriate to simply continue prescribing the medication in isolation.

As this patient is not vomiting and has mild-to-moderate symptoms currently, there is no indication for giving intramuscular prochlorperazine. However, it can be considered if nausea and vomiting symptoms are severe and require rapid relief.

There are no red flags in the history or examination to suggest a stroke as the cause for her symptoms, hence a same-day assessment by the stroke team is incorrect.

The Epley manoeuvre is used to treat BPPV (benign paroxysmal positional vertigo), which would cause brief episodes of vertigo on changing head position.

Question:

A 76-year-old man is admitted to hospital with sudden-onset paralysis and paraesthesia affecting his left side. He has a background of vascular dementia, coronary artery disease and chronic obstructive pulmonary disease (COPD). The speech and language therapy (SALT) team have deemed that he has an unsafe swallow, and have recommended insertion of a nasogastric (NG) tube. His wife refuses the procedure, stating that he gets great enjoyment from his food and feeding him through a tube would make him miserable. She is his lasting power of attorney (LPA). What is the most appropriate initial course of action?

A.Insert a percutaneous endoscopic gastrostomy (PEG) tube

B.Continue oral feeding

C.Consult another family member

D.Insert an NG tube

E.Assess the patient's capacity

Answer:Assess the patient's capacity

Explanation:

Just because it is stated that the patient has dementia, does not mean that they necessarily lack capacity. A capacity assessment should first be performed before any decisions are made. Inserting the NG tube without agreement from either the patient or his wife would not be appropriate - after careful discussion with the wife a compromise may be reached. Continuing oral feeding without first assessing the patient's capacity would certainly not be in the patient's best interests. Consulting another family member may undermine the wife, besides, she is the patient's LPA and should be consulted first on clinical decisions like this. Inserting a PEG tube may be an appropriate long term solution, but should not be considered now until an agreement about oral feeding has been reached.

Question:

A 24-year-old man attends the emergency department with left eye swelling and painful eye movements.

He is usually fit and well with a past medical history of chronic sinusitis only.

On examination, his left eye is swollen shut with marked eyelid oedema and erythema that extends from the maxilla up to the eyebrow. When the eye is manually opened there is chemosis.

What would the most appropriate initial treatment be for this patient?

A.Immediate CT head

B.Intravenous antibiotics

C.Ophthalmology review

D.Oral antibiotics

E.Topical chloramphenicol

Answer:Intravenous antibiotics

Explanation:

Patients with orbital cellulitis require admission to hospital for IV antibiotics due to the risk of cavernous sinus thrombosis and intracranial spread

Important for meLess important

This patient has evidence of orbital cellulitis which necessitates urgent treatment with intravenous antibiotics due to the risk to sight and risk of spread.

Orbital swellings are classified by 'Chandler's classification':

I. Pre-septal cellulitis

II. Orbital cellulitis without abscess

III. Orbital cellulitis with subperiosteal abscess

IV. Intra-orbital abscess

V. Cavernous sinus thrombosis

Pre-septal cellulitis involves tissues anterior to the orbital septum i.e. the eyelids. Orbital cellulitis involves tissues behind the orbital septum and can progress to cavernous sinus thrombosis.

Signs that point to orbital cellulitis rather the pre-septal cellulitis include:

Painful eye movements

Restricted eye movements

Reduction in colour vision

Abnormal pupillary responses to light

Reduced visual acuity

Reduced visual fields

Presence of chemosis

Presence of proptosis

Intravenous antibiotics are the most important part of the initial treatment for orbital cellulitis to treat the underlying infection. If there is evidence of intracranial spread or abscess on CT scan the patient may also require external drainage or neurosurgical intervention. Do not delay starting antibiotics whilst awaiting specialist review.

Immediate CT head does form part of the management for orbital cellulitis but it is not the initial priority, treatment with antibiotics takes precedence. The reasoning behind doing a CT head is to assess the extent of spread. For pre-septal cellulitis, a CT head is not usually required but may be completed if the diagnosis is uncertain or examination is difficult e.g. due to extreme swelling.

Ophthalmology review is important in the management of orbital cellulitis, these patients are usually managed under the joint care of ENT and ophthalmology. Waiting for or requesting a specialist review, however, should not delay the administration of antibiotics and so is not the priority.

Oral antibiotics wouldn't be appropriate due to the potential severity of this infection. It is recommended that antibiotics are administered via the IV route rather than oral.

Topical chloramphenicol would not be sufficient to treat orbital cellulitis, systemic therapy is required to deliver sufficient antibiotics to the area of infection.

Question:

You are the paediatrician reviewing a newborn who was delivered at 39+2 weeks vaginally and without any complications. The child's father has a diagnosis of achondroplasia and the parents are wondering whether their child has this condition.

Aside from measuring the child's length, what physical feature might suggest achondroplasia in this child?

A.Low set ears

B.Sandal-gap deformity

C.Trident hand deformity

D.Single palmar crease

E.Microcephaly

Answer:Trident hand deformity

Explanation:

Trident hands - feature of achondroplasia

Important for meLess important

It is important to be able to identify the different physical features of congenital conditions for exam purposes and to aid diagnosis.

Alongside trident hand deformity (short, stubby fingers with separation between the middle and ring fingers), other physical features include: short limbs (rhizomelia), lumbar lordosis and midface hypoplasia.

Low set ears is seen in Fragile X syndrome

Saddle-gap deformity and single palmar crease is seen in Down's syndrome.

It is macrocephaly with frontal bossing that is seen in achondroplasia, not microcephaly.

Question:

A 1-month-old baby, born at 39 weeks, presents with being increasingly unsettled around 30-60minutes after feeds, with frequent regurgitation, 'colic' episodes and non-bloody diarrhoea. There is no history of fever, urticaria, angioedema or wheeze. He is exclusively formula-fed.

The examination is unremarkable aside from some mild eczema in his flexural areas. His weight remains stable between the 50-75th centile.

What is the most appropriate next management step for this child?

A.Amino-acid based formula trial

B.Anti-reflux medication trial

C.Extensively hydrolysed formula trial

D.Refer to a paediatrician

E.Soya milk trial

Answer:Extensively hydrolysed formula trial

Explanation:

If a formula-fed baby is suspected of having mild-moderate cow's milk protein intolerance then a extensive hydrolysed formula should be tried

Important for meLess important

Extensively hydrolysed formula is the first-line replacement formula for infants with mild-moderate symptoms of cow's milk protein allergy. The widespread symptoms including diarrhoea alongside eczema make cow's milk protein allergy the most likely diagnosis.

Anti-reflux medication trial would be helpful for isolated reflux symptoms, however, the widespread symptoms including diarrhoea alongside eczema make cow's milk protein allergy the most likely diagnosis. Therefore, an extensively hydrolysed formula trial is most appropriate.

Amino acid-based formula is used in infants with severe cow's milk protein allergy or if there has been no response to extensively hydrolysed formula. Therefore, this is not the most appropriate next management step but may be required depending on the resolution of symptoms.

Referral to a paediatrician is not required here as the symptoms are mild without evidence of failure to thrive.

Around 10% of infants with cow's milk protein allergy are also intolerant to soya milk. It is therefore not an appropriate option.

Question:

A 22-year-old man attends an appointment with his general practitioner. He has noticed a non-tender lump in his scrotum. He is concerned that he is developing bilateral breast enlargement.

Given the likely diagnosis, what is the most appropriate first-line investigation?

A.Fine needle aspiration of testicular lump

B.Liver function tests

C.Mammogram

D.Pituitary MRI

E.Testicular ultrasound scan

Answer:Testicular ultrasound scan

Explanation:

Gynaecomastia in testicular cancer occurs due to an increased oestrogen:androgen ratio

Important for meLess important

The correct answer is testicular ultrasound scan. The symptoms of a painless testicular lump and gynaecomastia suggest a diagnosis of testicular cancer, the most likely cancer to occur in a man of this age. The gynaecomastia is caused by an increase in the oestrogen: androgen ratio. This patient should be referred urgently to urology under the two-week wait referral pathway. The first-line investigation of suspected testicular cancer is a testicular ultrasound scan.

Fine-needle aspiration or biopsy is not recommended for suspected testicular cancer - diagnosis is established by removing the testicle.

Liver function tests could be indicated if the cause of the gynaecomastia was suspected liver disease. However, there are no other signs of liver disease.

Mammography is not indicated. It is worth noting however that gynaecomastia does put men at an increased risk of breast cancer, which develops in approximately 1% of men with gynaecomastia.

A pituitary MRI may be considered if hyperprolactinaemia was the suspected cause of this patient's gynaecomastia. A prolactinoma tends to cause galactorrhoea, but can also result in gynaecomastia. However, there are no other features suggestive of prolactinoma.

Question:

A 27-year-old woman presents to her GP with a 2-month history of worsening headaches and blurred vision. The headaches are described as dull and diffuse. More recently, she notes hearing a 'whoosh' sound, in time with her pulse, that she notices more before bed. She has a past medical history of asthma, acne vulgaris, recurrent tennis elbow and menorrhagia. Her repeat medications include ferrous sulphate, lymecycline, paracetamol, salbutamol and the progesterone-only pill. She has a BMI of 32kg/m2.

Peripheral and cranial nerve examination is unremarkable. Fundoscopy reveals bilateral optic disc swelling.

Given the likely diagnosis, which of the following medications is known to increase the risk of developing this condition?

A.Ferrous sulphate

B.Lymecycline

C.Paracetamol

D.Progesterone-only pill

E.Salbutamol

Answer:Lymecycline

Explanation:

Tetracyclines increase the risk of idiopathic intracranial hypertension

Important for meLess important

The patient is presenting with features of idiopathic intracranial hypertension. This is evidenced by the presence of diffuse headaches, blurred vision, pulsatile tinnitus (the 'woosh' sound she describes) and the bilateral papilloedema. Lymecycline is in the tetracycline class of antibiotics - a class known to increase risk of developing this condition.

Ferrous sulphate is being prescribed to manage the iron-deficiency anaemia resulting from this woman's menorrhagia. It is not known to increase the risk of idiopathic intracranial hypertension.

Paracetamol is being used regularly by this patient for her recurrent tennis elbow pain. It is not known to increase risk either.

The progesterone-only contraceptive pill is not known to increase the risk of idiopathic intracranial hypertension. However, the combined oral contraceptive pill is known to increase the risk of developing this condition.

Salbutamol, is a beta-agonist used in the acute relief of asthmatic symptoms. It is not known to increase risk of idiopathic intracranial hypertension.

Question:

You are undertaking your GP rotation. Sarah, a 19-year-old female, presents with a 2-week history of post-coital bleeding. For the past 3 days, she has also noticed increased amounts of vaginal discharge. She says this is clear in colour and does not have any strong odour.

Sarah tells you she has had 4 sexual partners in the last three months. All of these have been male partners and she has engaged in vaginal sex only. She cannot remember if she used barrier contraception but is taking a combined oral contraceptive pill and is certain she has not missed any pills.

Given the most likely causative organism, which of the following methods is the most sensitive method for diagnosis?

A.Cell culture

B.Cervical swab for NAAT

C.First-void urine

D.Microscopy

E.Vulvo-vaginal swab for NAAT

Answer:Vulvo-vaginal swab for NAAT

Explanation:

Swabs for chlamydia and gonorrhoea in women should be taken from the vulvo-vaginal area (introitus)

Important for meLess important

Chlamydia is the most prevalent sexually transmitted infection in the UK. Although many patients are asymptomatic, Sarah's symptoms and history would suggest that this is the most likely infection.

Nucleic acid amplification tests (NAATs) are currently the most sensitive and specific test for the diagnosis of Chlamydia in females. An endocervical swab can be performed, but it is not as sensitive as a vulvovaginal swab. Vulvovaginal swabs for NAAT is the specimen of choice in females, as recommended by BASHH.

Cell culture is no longer used for the diagnosis of Chlamydia as it is time and resource-intensive.

A cervical swab for NAAT can be used for diagnosis, but is less sensitive than a vulvovaginal swab and requires an uncomfortable speculum examination.

First-void urine is the first-line option in males but is less sensitive in females.

Microscopy is not recommended for the diagnosis of Chlamydia. The bacteria is an obligate intracellular organism and does not gram stain well.

Question:

A 35-year-old woman with Crohn's disease is on azathioprine to maintain remission. She presents to her GP with a 3-day history of fever, lethargy, and coryzal symptoms. Due to her medication history the GP is concerned and ordered some investigations.

What investigation is the most important in this situation?

A.Chest X-ray

B.Full blood count

C.Liver function tests

D.Thiopurine methyltransferase (TPMT)

E.Thyroid function tests

Answer:Full blood count

Explanation:

Azathioprine may cause myelosuppression - consider a full blood count if infection/bleeding occurs

Important for meLess important

Full blood count - this is the correct answer. Azathioprine can reduce the white cell count to dangerously low numbers which can be life-threatening if left untreated. For a patient on azathioprine, it is important to consider a full blood count if infection or bleeding occurs.

Chest X-ray - this is incorrect. Whilst a chest x-ray may be needed for a chest infection, the main concern here is myelosuppression due to the patient's medication history and this wouldn't show up on a chest x-ray.

Liver function tests - this is incorrect. Although azathioprine is metabolised in the liver, liver function tests are not as important in this scenario. Here, the patient hasn't taken an accidental higher dose nor are they displaying signs of toxicity. The priority here is to check the full blood count since azathioprine can cause myelosuppression which can be fatal if left untreated.

Thiopurine methyltransferase (TPMT) - this is incorrect. TPMT levels are checked before commencing azathioprine as some patients have a genetic disposition to low TPMT levels which can contribute to myelosuppression once the patient is started on azathioprine. In this scenario, the patient should have already had their TPMT levels checked prior to starting the drug. Since they are on this drug it is safe to assume their TPMT levels are not a cause for concern and, therefore, do not need rechecking.

Thyroid function tests -this is incorrect. Azathioprine has no effect on the thyroid, therefore, thyroid levels wouldn't be a cause for concern in this scenario. The priority here is to check the full blood count since azathioprine can cause myelosuppression which can be fatal if left untreated.

Question:

You are working in the emergency department over the winter. A patient is brought in by air ambulance following a road traffic collision. He is seen by the trauma team and investigated appropriately. He appears to have a fracture in his right radius, and the CT of the brain shows some small frontal contusions. Both are managed conservatively and the patient is admitted to the observation ward. However, after a few days of observation, he remains confused and the family tell you he hasn't said a comprehensible word to them since he arrived. What investigation is most appropriate given possible diagnosis of diffuse axonal injury?

A.MRI brain

B.Repeat CT scan of the brain

C.Electro-encephalogram

D.CT angiogram

E.CT scan with contrast

Answer:MRI brain

Explanation:

MRIs are the most sensitive scan to diagnose diffuse axonal injury

Important for meLess important

MRI scans will detect diffuse axonal injury.

Repeat CT scans are useful to see if the contusions are increasing in size. Electro-encephalograms are indicated in epilepsy. CT angiograms are useful in subarachnoid haemorrhage patient when looking for a cause. CT scans with contrast are useful for tumours or possible abscesses.

Question:

A 65-year-old man is referred to you by his GP for pulmonary function tests. He presented to his GP 2-months ago complaining of worsening shortness of breath over the last year. He states that he struggles to walk to the shops just 100m down the road without pausing to take a breath.

On further questioning, you learn that he is an ex-smoker with 40-pack-years. You discuss with the patient the possibility of an emphysema diagnosis.

You perform pulmonary function testing and a transfer factor to measure the total gas transfer (TLCO).

What would you expect to see in this patient?

A.FEV1/FVC = 65% (of predicted) TLCO = reduced

B.FEV1/FVC = 66% (of predicted) TLCO = raised

C.FEV1/FVC = 80% (of predicted) TLCO = raised

D.FEV1/FVC = 83% (of predicted) TLCO = raised

E.FEV1/FVC = 84% (of predicted) TLCO = reduced

Answer:FEV1/FVC = 65% (of predicted) TLCO = reduced

Explanation:

Emphysema is associated with a reduced TLCO

Important for meLess important

FEV1/FVC = 65% (of predicted) TLCO = reduced is correct. This patient is presenting with a possible emphysema diagnosis. Emphysema is a pathological disease process in which the distal airways are damaged leading to dilation of the alveoli and destruction of alveolar walls. Emphysema would cause an obstructive pattern on pulmonary function testing, hence the reduced FEV1/FVC ratio. There are then two answers to choose between, the one with reduced TLCO and the one with increased TLCO. In emphysema, the alveolar walls are destroyed and the consequent surface area available for gas exchange is reduced. Therefore, TLCO is reduced in patients with emphysema.

FEV1/FVC = 66% (of predicted) TLCO = raised is incorrect. Although the FEV1/FVC ratio is indicative of emphysema with the obstructive pattern. The TLCO is raised which is not the case in emphysema. You would expect to see a raised TLCO in asthmatic patients, or patients with left-to-right cardiac shunts.

FEV1/FVC = 80% (of predicted) TLCO = raised is incorrect. The FEV1/FVC ratio, in this case, is normal which can indicate restrictive lung disease. Restrictive lung disease would be more indicative of a diagnosis of pulmonary fibrosis or neuromuscular disorders. The patient is presenting with signs and symptoms of emphysema, therefore would be presenting with an obstructive respiratory function test. The TLCO is raised which is not the case in emphysema. You would expect to see a raised TLCO in asthmatic patients, or patients with left-to-right cardiac shunts.

FEV1/FVC = 83% (of predicted) TLCO = raised is incorrect. The FEV1/FVC ratio, in this case, is raised which indicates a restrictive lung disease. Restrictive lung disease would be more indicative of a diagnosis of pulmonary fibrosis or neuromuscular disorders. The patient is presenting with signs and symptoms of emphysema, therefore would be presenting with an obstructive respiratory function test. The TLCO is raised which is not the case in emphysema. You would expect to see a raised TLCO in asthmatic patients, or patients with left-to-right cardiac shunts.

FEV1/FVC = 84% (of predicted) TLCO = reduced is incorrect. Although the TLCO here matches a diagnosis of emphysema, the FEV1FVC ratio is raised which would indicate restrictive lung disease. Restrictive lung disease would be more indicative of a diagnosis of pulmonary fibrosis or neuromuscular disorders. Emphysema is not a restrictive lung disease so therefore you would not expect to see these respiratory function tests in this patient.

Question:

A 63-year-old man is seen by his GP with one week of tinnitus. He has no hearing loss or vertigo and this has never happened before.

The patient tells you that he was recently in the hospital for heart failure and received one drug intravenously which rapidly made him feel less breathless.

What drug is he most likely to have received to explain his symptoms?

A.Bisoprolol

B.Furosemide

C.Gentamicin

D.Ramipril

E.Spironolactone

Answer:Furosemide

Explanation:

Loop diuretics may cause ototoxicity

Important for meLess important

Furosemide is correct. It can cause tinnitus, especially when given by a rapid intravenous infusion. It is caused by disturbance of the electrolytes within the cochlear, and these symptoms tend to be reversible.

Bisoprolol is incorrect. It is not known to cause ototoxicity or tinnitus. Bisoprolol can exacerbate obstructive airway conditions and cause hypotension and bradycardia.

Gentamicin is incorrect. Gentamicin can cause ototoxicity and tinnitus. However, gentamicin is not given to treat breathlessness during heart failure, and thus, gentamicin cannot be attributed to being the cause of this patient's symptoms.

Ramipril is incorrect. Ramipril is associated with tinnitus but is not given intravenously.

Spironolactone is incorrect. It is not known to cause tinnitus or ototoxicity. Spironolactone can cause hyperkalaemia due to it being a potassium-sparing diuretic.

Question:

A 34-year-old man attends following an injury that occurred while playing football. He reports sudden pain in his right calf that started with a snapping sound while running. You suspect an Achilles tendon rupture and examine for the signs present using Simmonds' Triad.

What does this examination involve?

A.Calf squeeze test, gait, observation of the angle of declination

B.Calf squeeze test, gait, palpation of the tendon

C.Calf squeeze test, observation of the angle of declination, palpation of the tendon

D.Calf squeeze test, palpation of the tendon, tiptoe test

E.Observation of the angle of declination, palpation of the tendon, tiptoe test

Answer:Calf squeeze test, observation of the angle of declination, palpation of the tendon

Explanation:

Use Simmonds triad (palpation, examining the angle of declination at rest and the calf squeeze test) to assess for evidence of Achilles tendon rupture

Important for meLess important

Simmonds' triad is used to examine for an Achilles tendon rupture. It includes palpation of the Achilles tendon (examining for a gap), observing for an abnormal angle of declination (i.e. the foot is more dorsiflexed than the other), and performing the calf squeeze test. This is positive when squeezing the calf does not cause the foot to plantarflex as expected.

Although these patients may struggle to stand on tiptoes with the affected leg, this does not form part of Simmonds' triad.

The gait may be abnormal following an Achilles tendon rupture but, again, this does not form part of Simmonds' triad.

Question:

A 25-year-old farmer presents with a contaminated puncture wound after catching his arm on farming machinery that is heavily contaminated with soil. After cleaning the wound thoroughly, you wonder about his requirement for protection against tetanus and see that he completed 5 doses of tetanus vaccine previously with his last dose 8 years ago.

What is the recommended treatment regarding tetanus for this man?

A.No booster vaccine or immunoglobulin required

B.Requires booster vaccine but not immunoglobulin

C.Requires both a booster vaccine and immunoglobulin

D.Requires immunoglobulin but not the booster vaccine

E.Requires two courses of booster vaccine

Answer:No booster vaccine or immunoglobulin required

Explanation:

If a patient has had 5 doses of tetanus vaccine, with the last dose < 10 years ago, they don't require a booster vaccine nor immunoglobulins, regardless of how severe the wound is

Important for meLess important

As he has completed the full 5 doses of tetanus vaccine and the last dose within 10 years, regardless of the level of risk associated, he does not require a booster vaccine or immunoglobulins.

He would require the booster vaccine without immunoglobulin if it had been more than 10 years since his last vaccine with a lower risk wound.

For any high-risk wound without the last vaccine within 10 years or if the vaccination status is unknown, he would require both booster vaccine and immunoglobulin.

There is no role currently for two subsequent booster vaccines.

Question:

A 48-year-old man presents with a 'droopy eyelid' on the right side. You also notice that his right pupil appears smaller than the left:

What is this most likely to represent?

A.Argyll-Robertson pupil

B.Sixth nerve palsy

C.Horner's syndrome

D.Third nerve palsy

E.Holmes-Adie pupil

Answer:Horner's syndrome

Explanation:

A right-sided ptosis and miosis can be seen pointing to a diagnosis of Horner's syndrome.

Question:

A 54-year-old man presents with a persistent tremor. On examination there is 6-8 Hz tremor of the arms which is worse when his arms are outstretched. His father suffered from a similar complaint. What is the most suitable first-line treatment?

A.Amitriptyline

B.Propranolol

C.D-penicillamine

D.Levodopa

E.Diazepam

Answer:Propranolol

Explanation:

Essential tremor is an AD condition that is made worse when arms are outstretched, made better by alcohol and propranolol

Important for meLess important

This patient has a typical history of essential tremor. Propranolol is generally considered the first-line treatment

Question:

A 44-year-old woman was referred by her optician with a chronic progressive history of photophobia, flashing lights, and reading difficulties over several months. She has a background of systemic lupus erythematosus for which she takes hydroxychloroquine. On fundoscopy, there is central depigmentation of a macula surrounded by thin speckled rings of hyper-pigmentation, but otherwise normal. She has no other symptoms.

There have been no changes to her medications and she did not attend any of her follow-up appointments for over 3 years.

What is the cause of her symptoms?

A.Cytomegalovirus retinitis

B.Dry age-related macular degeneration

C.Hydroxychloroquine

D.Lupus retinopathy

E.Wet age-related macular degeneration

Answer:Hydroxychloroquine

Explanation:

Hydroxychloroquine - may result in a severe and permanent retinopathy

Important for meLess important

Hydroxychloroquine ocular toxicity in its advance form causes a 'bull's-eye maculopathy'. Damage is irreversible, and even following discontinuation of the offending drug may progress for over a year. Therefore, regular monitoring for early changes is essential to prevent irreversible visual deterioration.

Dry age-related macular degeneration is characterised by drusen spots which are characterised by small yellow deposits around the macular. These were not seen on examination of this patient's eye.

Cytomegalovirus retinitis on fundoscopy typically features white retinal opacities, with haemorrhage, of variable extent and location. None of these is seen here.

Lupus retinopathy typically features in chronically uncontrolled disease, but this patient has no other symptoms to suggest poorly controlled lupus. Lupus retinopathy may be asymptomatic or may present with decreased visual acuity. On fundoscopy, cotton wool spots, microaneurysms and hard exudates would be seen on the retina. Severe cases would also feature neovascularization. None of these changes are seen in this patient's case, making lupus retinopathy overall very unlikely here.

Wet age-related macular degeneration features neovascularisation of the macula which can then bleed and cause rapid visual loss. No such abnormalities were seen here, and the visual changes are of a chronic nature for this patient.

Question:

A 59-year-old woman presents to her GP with a 2-week history of worsening jaundice. She has noticed intermittent right upper quadrant pain associated with eating fatty foods and generally feels tired and drained.

Her past medical history includes ulcerative colitis, controlled with oral mesalazine, and primary sclerosing cholangitis, for which she is taking cholestyramine to control itching.

Physical examination confirms the presence of jaundiced sclerae and skin. There are no masses or tenderness on abdominal palpation. Weighing the patient reveals that she has lost 5kg since her last appointment 4 weeks ago.

What is the most likely cause of this patient’s symptoms?

A.Ascending cholangitis

B.Cholangiocarcinoma

C.Pancreatic ductal adenocarcinoma

D.Hepatocellular carcinoma

E.Cholecystitis

Answer:Cholangiocarcinoma

Explanation:

Cholangiocarcinoma develops in around 10% of primary sclerosing cholangitis patients

Important for meLess important

Cholangiocarcinoma is an important complication of primary sclerosing cholangitis (PSC) that affects up to 10% of PSC patients. It presents with jaundice, weight loss, pruritus and persistent biliary symptoms.

PSC confers a slightly increased risk of hepatocellular carcinoma if the patient has cirrhosis, however, cholangiocarcinoma is far more common. No studies have shown a convincing link between PSC and pancreatic cancer. The weight loss and persistent jaundice point to a more serious pathology than cholecystitis whilst ascending cholangitis would have infective features.

Question:

A 24-year-old woman weighing 70kg is brought to the emergency department with burns covering 25% of her body surface area.

Using the Parkland formula, calculate the volume of Hartmann's solution that is recommended to be given in the first 8 hours after the burn.

A.2L

B.3.5L

C.7L

D.8.5L

E.14L

Answer:3.5L

Explanation:

The Parkland formula is used to calculate the amount of fluid to give in the first 24 hours after burns, with half being given in the first 8 hours

Important for meLess important

4ml \* % body surface area \* weight (kg) = ml of Hartmann's to be given in first 24 hours

4 \* 25 \* 70 = 7000ml. Half of this should be given in the first 8 hours from the burn, so the answer is 3.5 L

Question:

You're the doctor in the emergency department and you're part of the team called to see a trauma patient following a road traffic accident. You and the team find that he has lost a lot of blood from several penetrating injuries. The major haemorrhage protocol is activated in order to quickly get blood products for the patient.

Whilst waiting for the blood products you look on the computer system to find out more about the patient's history. Recent blood tests are available from the GP's records and are shown below:

Hb 149 g/L Male: (135-180)

Female: (115 - 160)

Platelets 242 \* 109/L (150 - 400)

WBC 9.1 \* 109/L (4.0 - 11.0)

Na+ 141 mmol/L (135 - 145)

K+ 4.2 mmol/L (3.5 - 5.0)

Urea 3.9 mmol/L (2.0 - 7.0)

Creatinine 78 µmol/L (55 - 120)

CRP 4 mg/L (< 5)

IgG 1251 mg/dL (600-1600)

IgA <6.1 mg/dL (80-300)

IgM 102 mg/dL (40-250)

Bilirubin 12 µmol/L (3 - 17)

ALP 61 u/L (30 - 100)

ALT 24 u/L (3 - 40)

γGT 30 u/L (8 - 60)

Albumin 41 g/L (35 - 50)

What transfusion-related complication is this patient at an increased risk of?

A.ABO incompatibility

B.Anaphylactic reaction

C.Febrile non-haemolytic transfusion reaction

D.Transfusion-associated circulatory overload (TACO)

E.Transfusion-related acute lung injury (TRALI)

Answer:Anaphylactic reaction

Explanation:

IgA deficiency increases the risk of anaphylactic blood transfusion reactions

Important for meLess important

This patient has IgA deficiency, as evidenced by the IgA count of <6.1mg/dL. Selective IgA deficiency is the most common primary antibody deficiency. Patients with a low IgA count are much more likely to have anti-IgA antibodies in their blood. This means that when foreign IgA antibodies are encountered in the transfused blood, the patient's anti-IgA antibodies mount an immune response causing an anaphylactic reaction.

ABO incompatibility is a 'never event' and almost always occurs due to human error. This needs to be reported to the hospital transfusion department immediately.

Febrile non-haemolytic transfusion reaction is when a patient has a mild rise in temperature (<2ºC increase). This is common and as long as there are no features of a more severe reaction, paracetamol can be given and the transfusion continued.

TACO can occur when a patient has pre-existing heart failure or if a transfusion is given too fast and it causes hypertension and pulmonary oedema. If a patient is thought to be at risk of TACO, furosemide can be given alongside the transfusion.

TRALI is non-cardiogenic pulmonary oedema causing hypoxia, pulmonary infiltrates and a fever. Treatment is the same as for acute respiratory distress syndrome (ARDS). Risk factors are thought to include chronic alcohol abuse, smoking, and systemic inflammation.

Question:

A paediatrician is called to review a 2-day-old neonate born at 37+2 weeks gestation due to concerns in the newborn physical examination. The neonate has absent fundal reflexes bilaterally and a loud machinery murmur is heard on auscultation. Automated otoacoustic emission is suggestive of sensorineural deafness.

The mother recently arrived from overseas where she was unable to access antenatal care. She shows a photo of an exanthematous rash on her trunk in the first trimester, though the pregnancy was otherwise unremarkable.

Given this information, what is the neonate's likely diagnosis?

A.Alport syndrome

B.Congenital cytomegalovirus infection

C.Congenital rubella syndrome

D.Congenital toxoplasmosis infection

E.Congenital varicella syndrome

Answer:Congenital rubella syndrome

Explanation:

Congenital rubella

sensorineural deafness

congenital cataracts

Important for meLess important

Congenital rubella syndrome is correct, as this characteristically presents with sensorineural deafness and congenital cataracts. Although rubella has been eradicated in many Western nations due to vaccination, rubella is still endemic in some African, middle-Eastern, and South-East Asian nations. Rubella may present with a nonspecific viral exanthematous rash, similar to the one described in this patient. Congenital rubella syndrome is also associated with patent ductus arteriosus, causing a machinery murmur.

Alport syndrome is incorrect, as although this is associated with congenital sensorineural hearing loss, it is not associated with congenital cataracts. Alport syndrome is associated with renal impairment and nephritic syndrome.

Congenital cytomegalovirus infection is incorrect, as although this is associated with congenital sensorineural deafness, it is not typically associated with congenital cataracts. Congenital CMV infection may also be associated with cerebral palsy, anaemia, and jaundice.

Congenital toxoplasmosis infection is incorrect, as this would not typically present with sensorineural deafness, congenital cataracts, or a patent ductus arteriosus. Congenital toxoplasmosis infection classically causes cerebral calcification, chorioretinitis, and hydrocephalus.

Congenital varicella syndrome is incorrect, as although this may cause cataracts, sensorineural deafness is not a characteristic finding. Congenital varicella syndrome may cause skin scarring, microphthalmia, limb hypoplasia, and microcephaly.

Question:

A 62-year-old man presents to his GP with a sore throat. He describes a sore throat for the last 3 weeks that has been worsening associated with a hoarseness to his voice. He requests some antibiotics as it is now starting to affect his work (he is a football commentator). When you examine his throat you note that there is no pus or exudate on his tonsils.

Given this man's presentation, what is the best approach to take?

A.Prescribe antibiotics and paracetamol

B.Prescribe only paracetamol

C.Prescribe antibiotics and paracetamol and refer him non-urgently to have a neck ultrasound

D.Review the man in 3 days to assess the need for antibiotics

E.Refer on the 2-week wait cancer pathway

Answer:Refer on the 2-week wait cancer pathway

Explanation:

An unexplained persistent sore throat is an indication for 2-week wait referrals to oral surgery

Important for meLess important

This question is asking about a 62-year-old man presenting with a 3-week history of a sore throat and hoarse voice. This is an indication for a 2-week referral due to many possible head and neck cancers that can cause these symptoms e.g. cancers of the pharynx and larynx. Some lung cancers can also cause a hoarse voice and so this would be another reason for referral.

As this patient requires a 2-week-referral none of the other answers apart from option 5 are correct. However, if this patient was suffering from tonsillitis he would not require antibiotics as there is no pus noted on examination, and therefore ibuprofen or paracetamol alone would be sufficient in his management.

Question:

A 54-year-old gentleman with a background of ulcerative colitis presented to the GP surgery for a review following a recent exacerbation requiring oral corticosteroids to induce remission two weeks ago. He is currently well with no abdominal symptoms. In the past 12 months, he has had four exacerbations that required treatment with oral corticosteroids. His current medication includes paracetamol and mesalazine.

On examination, his temperature is 36.8ºC. His heart rate is 64/min with a blood pressure of 124/87mmHg. Abdominal exam is unremarkable.

His blood test from two days ago is as follow:

Hb 136 g/L Male: (135-180)

Platelets 367 \* 109/L (150 - 400)

WBC 9 \* 109/L (4.0 - 11.0)

CRP 4 mg/L (< 5)

Na+ 136 mmol/L (135 - 145)

K+ 3.8 mmol/L (3.5 - 5.0)

Bicarbonate 23 mmol/L (22 - 29)

Urea 4 mmol/L (2.0 - 7.0)

Creatinine 110 µmol/L (55 - 120)

Bilirubin 5 µmol/L (3 - 17)

ALP 68 u/L (30 - 100)

ALT 39 u/L (3 - 40)

γGT 55 u/L (8 - 60)

Albumin 36 g/L (35 - 50)

What is the recommended next step management for his ulcerative colitis according to NICE guidelines?

A.Oral thiopurines (azathioprine or mercaptopurine)

B.Calcineurin inhibitors (tacrolimus or ciclosporin)

C.Long term oral corticosteroid

D.Long term loperamide

E.Biologic therapy (infliximab or adalimumab)

Answer:Oral thiopurines (azathioprine or mercaptopurine)

Explanation:

If a patient with ulcerative colitis has had a severe relapse or >=2 exacerbations in the past year they should be given either oral azathioprine or oral mercaptopurine to maintain remission

Important for meLess important

The correct answer is oral thiopurines. NICE recommends thiopurines (azathioprine, mercaptopurine) to maintain remission if there are two or more inflammatory exacerbations in a 12-month period that require treatment with oral corticosteroids.

Calcineurin inhibitors is the wrong answer. They may be used to induce remission in people with mild to moderate disease if there is an inadequate response to oral corticosteroids after 2–4 weeks. Patient is currently well and has responded to the recent course of oral corticosteroids.

Corticosteroids should not be used to maintain clinical remission due to the risk of multiple adverse effects with long-term use, hence this is the wrong answer.

Loperamide is the wrong answer. It is not recommended for use in ulcerative colitis unless recommended by specialist. It is ineffective in controlling diarrhoea associated with ulcerative colitis and has risk of toxic megacolon.

Biologic therapy such as infliximab and adalimumab are effective at inducing remission in people with severe active disease which has not responded to conventional therapy. Patient does not have any features of severe active disease, hence, biologic therapy is the incorrect answer.

Question:

Mary is a 72-year-old woman who is retired. Recently she has noticed a stiffness in her fingers when she is knitting of an evening. Often she finds her fingers aching more than usual while she knits.

She is a retired typist who does not smoke or drink alcohol and has a body mass index of 32 kg/m².

Which of these radiological findings are most consistent with Mary's diagnosis?

A.Lytic bone lesions in the phalanges

B.Joint space narrowing of the proximal interphalangeal joints (PIPs) with joint effusion

C.Osteophytes at the distal interphalangeal joints (DIPs) and base of the thumb

D.'Pencil in cup appearance'

E.No changes - radiological changes are present later in the disease process

Answer:Osteophytes at the distal interphalangeal joints (DIPs) and base of the thumb

Explanation:

Carpometacarpal and distal interphalangeal joint involvement is characteristic of hand osteoarthritis

Important for meLess important

The correct answer is 'Osteophytes at the distal interphalangeal joints (DIPs) and base of the thumb' with the underlying diagnosis being osteoarthritis of the hand.

It is unlikely for lytic bone lesions to be so widespread that they would cause this presentation, they are more commonly found due to metastasis or osteomyelitis.

The PIP involvement and joint effusions are typical of rheumatoid arthritis. While this woman could have rheumatoid arthritis it is less likely given her age and the history. The time of onset (evenings), her obesity and previous work as a typist point to OA.

Pencil in cup appearance is pathognomonic of psoriatic arthritis. This woman does not complain of a skin lesion and OA is more likely.

The majority of OA is asymptomatic with radiological changes happening early in the disease process. Given the symptoms being described it is likely that some changes have occurred.

Question:

A 21-year-old man attends the emergency department after being involved in a fight. He tells you that he thinks he may have been bitten by the other male involved.

On examination, you find an area of broken skin on the left forearm consistent with a human bite. It is not currently bleeding, but blood has been drawn. The patient is normally fit and well, and has no known drug allergies.

Which of the following is the most appropriate treatment?

A.Clindamycin

B.Co-amoxiclav

C.Doxycycline

D.Flucloxacillin

E.No antibiotic therapy indicated

Answer:Co-amoxiclav

Explanation:

Human bites, like animal bites, should be treated with co-amoxiclav

Important for meLess important

NICE recommends antibiotic prophylaxis with co-amoxiclav when a human bite has broken the skin and drawn blood. In the case of a penicillin allergy, metronidazole and doxycycline should be used.

Where there is no skin broken, antibiotic prophylaxis is not required. If the skin is broken but no blood drawn, antibiotics should be given for high-risk areas of injury (e.g. hands, face, genitals) or where individuals are at increased risk of infection.

Clindamycin and flucloxacillin are not recommended in the treatment of human bites.

Question:

A 22-year-old woman presents due to hypopigmented skin lesions on her chest and back. She has recently returned from holiday in Spain and has tanned skin. On examination the lesions are slightly scaly. What is the most likely diagnosis?

A.Tinea corporis

B.Pityriasis versicolor

C.Porphyria cutanea tarda

D.Lyme disease

E.Psoriasis

Answer:Pityriasis versicolor

Explanation:

Question:

A 63-year-old man presents to his GP complaining of pain in his right eye. On examination the sclera is red and the pupil is dilated with a hazy cornea. What is the most likely diagnosis?

A.Scleritis

B.Conjunctivitis

C.Acute angle closure glaucoma

D.Anterior uveitis

E.Subconjunctival haemorrhage

Answer:Acute angle closure glaucoma

Explanation:

Red eye - glaucoma or uveitis?

glaucoma: severe pain, haloes, 'semi-dilated' pupil

uveitis: small, fixed oval pupil, ciliary flush

Important for meLess important

Question:

A 54-year-old man presents with excessive thirst, constant headaches and nausea. He states that his thirst persists despite drinking multiple bottles of water throughout the day.

On examination, he appears euvolaemic when assessing hydration status and vital signs are within normal range. Investigations are arranged which show the following:

Random urine osmolality 120 mOsm/kg (50-1200)

Urine osmolality after fluid deprivation 695 mOsm/kg (50-1200)

Urine osmolality after desmopressin 705 mOsm/kg (50-1200)

What is the most likely diagnosis?

A.Cranial diabetes insipidus

B.Dehydration

C.Nephrogenic diabetes insipidus

D.Nephrotic syndrome

E.Primary polydipsia

Answer:Primary polydipsia

Explanation:

Water deprivation test: primary polydipsia

urine osmolality after fluid deprivation: high

urine osmolality after desmopressin: high

Important for meLess important

Primary polydipsia is correct. The water deprivation test findings are consistent with a diagnosis of primary polydipsia and demonstrate a high urine osmolality after fluid deprivation (indicating that antidiuretic hormone (ADH) is effective and being secreted as it normally should be) and after being given desmopressin (indicating that the kidneys are responsive to antidiuretic hormone and work normally). This is caused by excessive intake of fluids and is associated with psychiatric disorders such as schizophrenia. This can be very serious as it can cause severe hyponatraemia which can lead to seizures, cerebral oedema and subsequently death if not treated correctly.

Cranial diabetes insipidus is incorrect. This is caused by reduced secretion of ADH. As a result, urine osmolality would be low after water deprivation (as it is not being secreted normally) and become high after the administration of desmopressin (as the kidneys are still responsive to ADH). This is not the case for this patient.

Dehydration is incorrect. This patient would have a high urine osmolality to begin with and he is not clinically showing signs of dehydration (e.g. dry mucous membranes and prolonged capillary refill time) based on the hydration status assessment. Further investigations would also be needed to assess the cause of his dehydration as he is drinking water and it is not addressing his thirst.

Nephrogenic diabetes insipidus is incorrect. The urine osmolality to remain low after water deprivation as well as after the administration of desmopressin in this condition. This is because the kidneys are unresponsive to ADH. The urine osmolality is high after water deprivation and administering desmopressin in this case making nephrogenic diabetes insipidus unlikely.

Nephrotic syndrome is incorrect. This patient would show signs of fluid overload due to hypoalbuminaemia, which is not the case in this patient.

Question:

A 27-year-old man presents to his GP with ongoing issues with sleep and admits that he has not been sleeping because of tension in his relationship with his girlfriend. He feels she is somewhat distant with him and is concerned that she is spending time with her former boyfriend who works in the same office as her.

On further questioning, he explains he has had several relationships in the past during which he felt as though they were not interested in him. He feels as though he will never be able to find the perfect partner therefore suffers from mood swings as a result. During the consultation, he reveals that he feels 'alone in the world' and that even his friends are 'out to get him', risk assessment reveals he does not have any suicidal thoughts but self-harms from time to time. A referral to psychiatry is made and subsequently he is diagnosed with borderline personality disorder.

What is the most appropriate treatment?

A.Cognitive behavioural therapy (CBT)

B.Dialectical behaviour therapy (DBT)

C.Exposure and response prevention therapy (ERP)

D.Eye movement desensitisation and reprocessing therapy (EMDR)

E.Interpersonal therapy

Answer:Dialectical behaviour therapy (DBT)

Explanation:

An effective treatment for borderline personality disorder is dialectical behaviour therapy (DBT)

Important for meLess important

Cognitive behavioural therapy (CBT) - incorrect as this is not a targeted therapy personality disorder patients and is more beneficial for patients suffering from depression or anxiety related conditions.

Dialectical behaviour therapy (DBT) - correct - this is a targeted therapy that is based CBT, but has been adapted to help people who experience emotions very intensely.

Exposure and response prevention therapy (ERP) - incorrect this is one of the treatment options for patients with obsessive compulsive disorder.

Eye movement desensitisation and reprocessing therapy (EMDR) - incorrect this is one of the treatment options for patients with post-traumatic stress disorder.

Interpersonal therapy - incorrect, this may be beneficial as he is having trouble with his personal relationships but the most effective treatment is DBT.

Question:

A 77-year-old man presents to his general practitioner complaining of severely reduced central vision. He never suffered from issues with his vision before and he is worrying it might be some sort of cancer causing it. He has a complex past medical history comprising rheumatoid arthritis, impotence, atrial fibrillation, and mild Parkinson's.

What is the most likely drug to have caused his symptoms?

A.Digoxin

B.Hydroxychloroquine

C.Levodopa

D.Methotrexate

E.Sildenafil

Answer:Hydroxychloroquine

Explanation:

Hydroxychloroquine - may result in a severe and permanent retinopathy

Important for meLess important

The correct answer is hydroxychloroquine. This patient is suffering from a severe side effect of this drug, bull's eye retinopathy. This side effect can cause irreversible damage to the retina, with patients complaining of loss of central vision. The name comes from the typical ophthalmoscopic appearance: a central area of retinal pigment epithelial depigmentation surrounded by the normal retina. This patient has probably been prescribed hydroxychloroquine for his rheumatoid arthritis.

Digoxin can be used for the treatment of atrial fibrillation. It can cause yellow-green vision but it has not been shown to cause retinopathy.

Levodopa, used for Parkinson's, can cause multiple side effects, including reddish discolouration of urine upon standing, dyskinesia, 'on-off' effect, hypotension, but it has not been shown to cause retinopathy.

Methotrexate is used in the management of rheumatoid arthritis. It can cause mucositis, myelosuppression, pneumonitis, and pulmonary fibrosis, but it has not been shown to cause retinopathy.

Sildenafil is used for the management of impotence. It can cause visual disturbances such as blue discolouration or non-arteritic anterior ischaemic neuropathy, but it has not been shown to cause retinopathy.

Question:

A 29-year-old woman presents to a sexual health clinic with a thin, white vaginal discharge which she reports has a foul, fish-like odour. The patient reports multiple sexual partners without using barrier protection.

Diagnostic testing is performed and microscopy confirms the presence of clue cells, the vaginal pH is found to be 4.6 and a whiff test is positive.

What organism is predominately responsible for this patient’s presentation?

A.Candida albicans

B.Escherichia coli

C.Gardnerella vaginalis

D.Lactobacillus acidophilus

E.Trichomonas vaginalis

Answer:Gardnerella vaginalis

Explanation:

Bacterial vaginosis - overgrowth of predominately Gardnerella vaginalis

Important for meLess important

This patient has presented with features of bacterial vaginosis, a condition caused by excess growth of predominately anaerobic, non-lactobacilli organisms, the most common of which is Gardnerella vaginalis. Patients may be asymptomatic or present with a white/grey, “fishy” offensive-smelling discharge and diagnosis is on confirmation of a higher than normal vaginal pH (above 4.5), the presence of clue cells on microscopy and/or a positive whiff test.

Candida albicans is a fungal organism and the most common cause of vaginal candidiasis, also known as thrush. Patients often present with a whitish, “cottage cheese-like” discharge and severe itching/burning of the vagina or vulva. Although the fungus may be present in bacterial vaginosis it is far less common than other organisms.

Escherichia coli is the commonest organism found in the aerobic counterpart of bacterial vaginosis, aerobic vaginitis. Patient general present with a thin reddish, odourless discharge and a high vaginal pH. The condition can progress resulting in extensive erosions or ulcerations.

Healthy vaginal microbiota consists mainly of lactobacilli with Lactobacillus acidophilus being the commonest. Bacterial vaginosis is due to an excessive overgrowth of other organisms and is characterised by a decline in lactobacilli.

Trichomonas vaginalis is an anaerobic, flagellated parasite that causes trichomoniasis, a frequently asymptomatic sexually transmitted disease. Again, although T. vaginalis may be present in bacterial vaginosis, it is much less prominent when compared to other organisms.

Question:

A 64-year-old man is taken to the emergency department with slurred speech and unilateral limb weakness. He is urgently taken for a CT scan of the head, which demonstrates a haemorrhagic stroke.

The team do not have access to his records; he was found in the street by a bystander. A warfarin card is found in the patient's wallet. Blood tests are subsequently checked:

International Normalised Ratio 8.5

Which of the following, if part of the patient's medication history, is most likely to have caused this?

A.Carbamazepine

B.Isoniazid

C.Paracetamol

D.Rifampicin

E.St John's wort

Answer:Isoniazid

Explanation:

Isoniazid inhibits the P450 system

Important for meLess important

The correct answer is isoniazid. The patient has suffered a haemorrhagic stroke - the INR is very high due to warfarin not being cleared away by the P450 system, which is being inhibited. From the above list, the only P450 inhibitor is isoniazid, an antibiotic used in the treatment of tuberculosis.

Carbamazepine is an antiepileptic medication. It is a known P450 inducer, rather than inhibitor, and so INR levels would be expected to be lower than they should be, not higher.

Paracetamol is not known to significantly affect the function of the P450 system. Paracetamol itself is affected by the P450 system, being oxidised to toxic metabolites which lead to liver failure.

Rifampicin is another antibiotic used in the treatment of tuberculosis. Contrary to isoniazid, it is a P450 inducer, not an inhibitor.

St John's wort is a herbal remedy sold over-the-counter for a variety of purpose (although a very limited evidence base). It is also a P450 inducer, not an inhibitor.

Question:

A 60-year-old male who recently underwent cardiac surgery presents with fever, fatigue, and weight loss. The patient was discharged after a successful mitral valve replacement 4 months ago and as such an urgent echocardiogram is performed.

The echo confirms the presence of a new valvular lesion, and a diagnosis of endocarditis is made. Three sets of blood cultures are taken.

Which organism is most likely to be responsible for the patient’s diagnosis?

A.Staphylococcus aureus

B.Staphylococcus bovis

C.Staphylococcus epidermidis

D.Streptococcus mitis

E.Streptococcus viridans

Answer:Staphylococcus aureus

Explanation:

Most common cause of endocarditis:

Staphylococcus aureus

Staphylococcus epidermidis if < 2 months post valve surgery

Important for meLess important

Staphylococcus aureus is now the most common cause of infective endocarditis particularly in acute presentations and intravenous drug users. Although the patient has recently undergone valve replacement surgery it was over 2 months ago and so the spectrum of organisms that cause endocarditis return to normal. Therefore, Staphylococcus epidermidis not the most likely organism.

Streptococcus bovis is part of the natural bowel flora and can result in endocarditis, but is not as common as Staphylococcus aureus. Streptococcus bovis is associated with colon cancer and, if found to be a causative agent of endocarditis, should prompt urgent investigation as the bacteria may have been released into the bloodstream due to a colon tract breakdown.

Staphylococcus epidermidis is the most common cause of endocarditis post valvular surgery but only for 2 months post-procedure. After this point Staphylococcus aureus becomes the more likely organism.

Streptococcus mitis is one of the most notable viridans streptococci and is found in the mouth. This organism is therefore associated with endocarditis following dental procedures or in patients with poor dental hygiene.

Streptococcus viridans previously was the most common cause of infective endocarditis, however this is no longer the case except in developing countries.

Question:

A man presents with an area of dermatitis on his left wrist. He thinks he may be allergic to nickel. Which one of the following is the best test to investigate this possibility?

A.Skin patch test

B.Radioallergosorbent test (RAST)

C.Nickel IgG levels

D.Skin prick test

E.Nickel IgM levels

Answer:Skin patch test

Explanation:

Question:

A 58-year-old presents with a painful swollen left knee which has failed to settle after a weeks rest. There is no history of trauma. On examination he has a moderate sized effusion. A plain radiograph is reported as follows:

Some loss of joint space

Linear calcification of the articular cartilage

What is the most likely diagnosis?

A.Pseudogout

B.Rheumatoid arthritis

C.Sarcoidosis

D.Gout

E.Osteoarthritis

Answer:Pseudogout

Explanation:

Chondrocalcinosis helps to distinguish pseudogout from gout

Important for meLess important

This x-ray describes chondrocalcinosis. Non-specific changes such as loss of joint space are common in this age group and pseudogout itself may cause osteoarthritic-like changes.

Question:

A 21-year-old woman who has been brought into the emergency department following a collapse. There is no further information about her available, however, an arterial blood gas has already been taken on room air and shows the following:

paO2 13 kPa (11 - 13)

paCO2 3.5 kPa (4.7 - 6)

pH 7.31 (7.35 - 7.45)

Na+ 143 mmol/L (135 - 145)

K+ 5 mmol/L (3.5 - 5.0)

Bicarbonate 17 mEql/L (22 - 29)

Chloride 100 mmol/L (98 - 106)

What diagnosis could explain the blood gas findings?

A.Addison's disease

B.Prolonged diarrhoea

C.Prolonged vomiting

D.Pulmonary embolism

E.Septic shock

Answer:Septic shock

Explanation:

An anion gap of > 14 mmol/L typically indicates a raised anion gap metabolic acidosis, rather than a normal anion gap

Important for meLess important

Whilst in practice an arterial blood gas (ABG) would be used to aid diagnosis and management in the context of the patient's history, examination and other investigation findings, in this case where we have no other information about the patient, the ABG alone can give us a clue towards the diagnosis. First, we can tell that the patient has a normal paO2, making a respiratory cause of her symptoms less likely. Her pH is, however, under 7.35, indicating an acidosis. Her bicarbonate is low, suggesting metabolic acidosis. Her low paCO2 shows some efforts to compensate. This is a partially compensated metabolic acidosis. To determine the cause of metabolic acidosis, the anion gap can be calculated. The anion gap is calculated by calculating the difference between positively charged ions (sodium and potassium) and negatively charged ions (bicarbonate and chloride). In this case (143 + 5) - (17 + 100) gives an anion gap of 31 mmol/L. A normal anion gap is 8-14 mmol/L. This patient, therefore, has metabolic acidosis with a raised anion gap. Raised anion gap shows there is excess acid in the blood. The only listed cause of raised anion gap metabolic acidosis is septic shock, which results in acidosis due to the production of lactic acid due to inadequate tissue perfusion.

Addison's disease is another cause of metabolic acidosis. However, in this case, there is a normal anion gap metabolic acidosis. This is because the acidosis is caused by loss of bicarbonate, rather than gain of acid, due to mineralocorticoid deficiency. Addison's disease is also not in keeping with the electrolyte values seen in this patient. Patients with Addison's typically have hyponatraemia and hyperkalaemia.

Prolonged diarrhoea could result in a collapse due to dehydration and electrolyte imbalance. Diarrhoea can also cause metabolic acidosis. However, this is not due to the addition of acid, but rather due to loss of the base, due to gastrointestinal loss of bicarbonate. Diarrhoea is therefore a cause of normal anion gap metabolic acidosis.

Pulmonary embolism is a cause of hypocapnia, as seen in this patient, due to hyperventilation. However, it would be unlikely for a patient with a pulmonary embolism significant enough to cause collapse to have normal oxygen levels. Furthermore, hypocapnia alone causes alkalosis. This patient is acidotic, meaning the hypocapnia is occurring as compensation. This profile does not fit a patient with a pulmonary embolism.

Prolonged vomiting could, again, result in a collapse due to dehydration and electrolyte imbalance. However, vomiting does not cause metabolic acidosis. It instead causes metabolic alkalosis, due to the loss of hydrogen ions in vomit. There is also a loss of chloride, creating a hypochloraemic metabolic alkalosis. This patient's electrolyte profile does not fit with prolonged vomiting.

Question:

A 58-year-old female on the respiratory ward was admitted with a pulmonary embolism one week ago and was started on warfarin at the time of diagnosis. She was covered with low molecular weight heparin until the INR was > 2 for 24 hours. For the past week she has been taking 4mg of warfarin and her INR four days ago was 2.2. Her INR has been checked today and is 1.3.

What is the most appropriate action to take?

A.Increase dose of warfarin to 6mg and start low molecular weight heparin

B.Increase dose of warfarin to 6mg

C.Start low molecular weight heparin and stop warfarin

D.Continue 4mg of warfarin and start low molecular weight heparin

E.Re-initiate warfarin using local protocol

Answer:Increase dose of warfarin to 6mg and start low molecular weight heparin

Explanation:

As her INR is < 2 she needs immediate anti-coagulation with rapid acting low molecular weight heparin. Her warfarin dose should also be increased to 6mg. Her INR should be carefully monitored and the LMWH discontinued when has adequate anti-coagulation.

Question:

A 34-year-old man presents with pain after falling onto his backward stretching right hand. On examination the right shoulder contour is flattened and a small bulge is felt below the right clavicle. You also note that there is a small patch of anaesthesia over the distal attachment of the deltoid muscle.

What injury would explain all the examination findings?

A.Posterior shoulder dislocation

B.Fracture of the clavicle

C.Fracture of the proximal humerus

D.Fracture of the shaft of the humerus

E.Anterior shoulder dislocation

Answer:Anterior shoulder dislocation

Explanation:

Anterior shoulder dislocation results in external rotation and abduction of the upper limb. Axillary nerve palsy can also occur due to shoulder dislocation. It can cause a weak deltoid muscle and sensory loss over the badge patch area.

Question:

A 78-year-old man attends his routine annual well-being check with his general practitioner. He had a blood test 1 week prior.

Hb 105 g/L Male: (135-180)

Female: (115 - 160)

Platelets 320 \* 109/L (150 - 400)

MCV 88 fl (80-100)

Reticulocytes 1.2 % (0.5 - 1.5)

Iron 15 µmol/L (14 - 28)

Ferritin 160 ng/mL (20 - 230)

WBC 8.2 \* 109/L (4.0 - 11.0)

Urea 8.4 mmol/L (2.0 - 7.0)

Creatinine 268 µmol/L (55 - 120)

eGFR 13 ml/min/1.73m² (>90)

Past medical history includes rheumatoid arthritis, hypertension, chronic kidney disease, and colon cancer. The patient reports feeling generally well and has no new symptoms, except for some fatigue.

What management step should be taken?

A.Prescribe cyanocobalamin tablets

B.Prescribe darbepoetin alfa injections

C.Prescribe ferrous sulfate tablets

D.Stop rheumatoid arthritis medication due to bone marrow suppression

E.Urgent endoscopy for chronic gastrointestinal bleed

Answer:Prescribe darbepoetin alfa injections

Explanation:

Chronic Kidney Disease often leads to anaemia due to reduced levels of erythropoietin

Important for meLess important

This scenario describes a 78-year-old man who has attended a routine well-being check which has identified normocytic anaemia and symptoms of fatigue. The blood results also show raised urea and creatinine, which match the low eGFR. This patient has multiple co-morbidities but given the normocytic anaemia, normal reticulocytes, and history of chronic kidney disease, prescribe darbepoetin alfa injections is the single best answer. It is important to note that other causes of anaemia (such as iron deficiency) should be checked and corrected prior to therapy with erythropoietin - this patient's iron levels are normal.

In chronic kidney disease, there is reduced production of erythropoietin from the kidneys, reducing the hormone signalling for the bone marrow to produce red blood cells. This results in anaemia. As a result, some patients with chronic kidney disease may require an erythropoietin prescription.

Prescribe cyanocobalamin tablets is not the correct answer. Vitamin B12 deficiency is another common cause of anaemia, but would classically be associated with macrocytic anaemia - as the MCV is normal in this case, B12 deficiency is likely not present and a prescription of cyanocobalamin is not indicated.

Prescribe ferrous sulfate tablets is not correct. Whilst iron deficiency anaemia is a common cause of anaemia, it typically would cause microcytic anaemia. This is not seen in this case and therefore prescribing ferrous sulfate is not indicated. Adding to this, iron and ferritin levels are normal suggesting iron deficiency is not present.

Stop rheumatoid arthritis medication due to bone marrow suppression is not correct. Whilst the patient may be on medications which could suppress the bone marrow (such as for cancer or rheumatoid arthritis treatment), this is not the most likely answer given the normal platelets and white cell counts.

Urgent endoscopy for chronic gastrointestinal bleed is not the single best answer. Whilst this patient has colon cancer and may have chronic blood loss associated with this, given that the reticulocyte count is normal, this is a less likely cause of their anaemia. In chronic blood loss, reticulocyte count would typically increase as the bone marrow produces more red blood cells.

Question:

A 73-year-old man presents pain in his right thigh. This has been getting progressively worse for the past 9 months despite being otherwise well. An x-ray is reported as follows:

X-ray right femur Radiolucency of subarticular region suggestive of osteolysis. Some areas of patchy sclerosis

Bloods tests show:

Calcium 2.38 mmol/L (2.2 - 2.6)

Phosphate 0.85 mmol/l (0.74 - 1.4)

Alkaline phosphatase 544 u/L (30 - 100)

Prostate specific antigen 3.4 ng/mL ( < 4.0)

What is the most appropriate action?

A.Vitamin D supplementation

B.Check serum testosterone

C.Referral to an orthopaedic surgeon

D.Referral to a urologist

E.IV bisphosphonates

Answer:IV bisphosphonates

Explanation:

Paget's disease of the bone is treated with bisphosphonates

Important for meLess important

This patient has Paget's disease as evidenced by an isolated rise in ALP and characteristic x-ray changes. As he has bone pain he should be treated with bisphosphonates. A PSA of 3.4 ng/ml is normal in a 73-year-old man and is certainly not consistent with metastatic prostate cancer

Question:

A 32-year-old man was admitted to the emergency department at 15:00, having taken an overdose of paracetamol. He states that he has attempted suicide due to feeling overwhelmed with his postgraduate degree and that he has felt particularly lonely since he moved to university. When asked how many tablets he has taken, he reluctantly admits to taking 30 paracetamol tablets over the course of the day since waking around 06:00. He has not consumed any other tablets with this overdose. He also cannot remember exactly when he last took some of the tablets, but he knows this was before 13:00.

What is the most appropriate next step?

A.Immediately administer IV naloxone

B.Immediately administer IV acetylcysteine

C.Immediately administer activated charcoal

D.Measure plasma paracetamol concentration before administering IV acetylcysteine

E.Measure plasma paracetamol concentration before administering activated charcoal

Answer:Immediately administer IV acetylcysteine

Explanation:

Patients who take a staggered paracetamol overdose should receive treatment with acetylcysteine

Important for meLess important

The correct approach to this patient is to immediately administer IV acetylcysteine. This is because the question stem shows that there has been a staggered paracetamol overdose (30 tablets over approximately 7 hours), and therefore you should give IV acetylcysteine regardless of the possible plasma paracetamol concentration. This is based on the guidance of the 2012 Commission on Human Medicines (CHM) review of paracetamol overdose management (see notes below).

Activated charcoal is not appropriate, as this should only be given when the tablets have been consumed less than 1 hour ago. In this case, ingestion took place at least 2 hours prior, and thus the activated charcoal would have no benefit.

IV naloxone is not suitable in this patient as there is no evidence of an opioid overdose. The question states that he 'has not consumed any other tablets with this overdose'.

Question:

An 18-year-old woman is treated in the emergency department resus following a jump from a bridge. Her treatment is being coordinated by the enhanced trauma team. She had a GCS of 3 and was intubated and ventilated. She is found to have reduced chest expansion and had a chest drain inserted.

Primary surveillance indicates bilateral calcaneus fractures, a fractured pelvis, multiple rib fractures as well as multiple vertebral fractures in her lumbar region.

After 15 minutes, it is noted her chest drain has drained 2 litres of blood and is continuing to drain blood.

What is the most appropriate management?

A.Emergency thoracotomy

B.IV tranexamic acid

C.Insertion of a second chest drain

D.Take to theatre for a thoracoscopy

E.Transfuse 3 units of blood

Answer:Emergency thoracotomy

Explanation:

Indications for thoracotomy in haemothorax include >1.5L blood initially or losses of >200ml per hour for >2 hours

Important for meLess important

This woman presents with a complex polytrauma. Whilst there are various injuries that need attending to, control of a major haemorrhage should come first. There is a clear location of a major haemorrhage in a haemothorax. This may have occurred due to her fractured rib affecting the internal mammary artery, or the force of the trauma causing pulmonary vasculature to be affected. A major haemorrhage into the thorax should prompt immediate surgical exploration to try and identify, and stop the bleeding. An emergency thoracotomy is indicated here due to the volume of bleeding seen initially. This would also be indicated if there was evidence of prolonged, continuous bleeding seen by a loss of over 200 ml per hour. An emergency thoracotomy is likely to be performed in the resuscitation department and involves cracking open the chest wall in order to directly visualise and control the bleeder.

IV tranexamic acid is incorrect. This is a drug used in cases of haemorrhage to promote clotting. However, it takes up to 24 hours to reach maximum efficacy and is unlikely to control a massive haemorrhage into the thorax.

Inserting a second chest drain is incorrect. This only assists with drainage of the blood and does not address the issue of stopping further bleeding.

Taking to theatre for a thoracoscopy is incorrect. This woman is likely to be not stable enough for a theatre transfer. Thoracoscopy involves indirect visualisation into the thorax via a camera. In cases of massive haemorrhage, direct visualisation via thoracotomy is better as it allows prompt control once the bleeder is found.

Transfusing 3 units of blood is incorrect. This is likely to be part of her management, but it is more important to prevent further bleeding before trying to volume resuscitate her.

Question:

A patient you have looked after in the infectious diseases ward who has had several unusual infections has tested positive for HIV. He consented to this test with counselling, including the need to contact partners. He has disclosed that he is routinely sexually active without protection with many sexual partners at a time. When you ask him to consent to contact tracing, he refuses - citing shame - and insists that his partners will know he has HIV, even though the process is anonymous.

What is the most appropriate course of action?

A.You must respect this man's right to confidentiality

B.You have a responsibility to breach patient confidentiality in the circumstances - Discuss this with him before you do so

C.Disclose the information without telling the patient to avoid him becoming angry

D.Tell him if he will not consent to you breaching confidentiality then he needs to promise to tell them himself

E.Try to speak to his long-term partner privately the next time he visits on the ward

Answer:You have a responsibility to breach patient confidentiality in the circumstances - Discuss this with him before you do so

Explanation:

This question presents a difficult dilemma relating to the balance between confidentiality and the need to appropriately manage serious communicable diseases.

Contact tracing is designed to allow sexual contacts of patients with such diseases to be contacted to let them know they have been exposed to an affected person, normally without disclosing their identity. This is viewed as balancing both of these issues.

The GMC States that: 'You may disclose information to a known sexual contact of a patient with a sexually transmitted serious communicable disease if you have reason to think that they are at risk of infection and that the patient has not informed them and cannot be persuaded to do so. In such circumstances, you should tell the patient before you make the disclosure, if it is practicable and safe to do so. You must be prepared to justify a decision to disclose personal information without consent.'

Source: http://www.gmc-uk.org/guidance/ethicalguidance/30080.asp

Question:

A 36-year-old man presents to the Emergency Department with chest pain. This started around 2 hours ago and is described as severe. The pain is central, with no radiation. It is not worse on deep inspiration.

He smokes 10 cigarettes/day but is otherwise fit and well. His father had a myocardial infarction at the age of 61 years. Examination of the cardiovascular system is unremarkable with a blood pressure of 136/84 mmHg, pulse 96/min, respiratory rate 14/min and saturations 98% on room air.

An ECG is taken:

© Image used on license from Dr Smith, University of Minnesota

What is the most likely diagnosis?

A.Pulmonary embolism

B.Anterior myocardial infarction

C.Acute pericarditis

D.Hypertrophic obstructive cardiomyopathy

E.Brugada syndrome

Answer:Acute pericarditis

Explanation:

The ECG shows widespread ST elevation but the most diagnostic feature of the ECG is the PR depression - this is very specific for pericarditis and makes the diagnosis clear.

Question:

A 30-year-old woman and her husband presented to the GP regarding conception advice. They would like to start a family. She has a past medical history of obesity and asthma and her BMI is 32 kg/m². Her husband has Crohn's disease controlled with methotrexate.

There is no significant family history on each side and she would like to give birth vaginally if possible. She has no obstetric history.

What is the most important advice to give?

A.Her husband should use contraception and wait for 3 months after stopping treatment first

B.Her husband should use contraception and wait for 6 months after stopping treatment first

C.She should take 400 micrograms of folic acid until the end of the first trimester

D.She should take 5 milligrams of folic acid until the end of the first trimester

E.They should both take 5 milligrams of folic acid until the end of the first trimester

Answer:Her husband should use contraception and wait for 6 months after stopping treatment first

Explanation:

Patients using methotrexate require effective contraception during and for at least 6 months after treatment in men or women

Important for meLess important

Her husband should use contraception and wait for 6 months after stopping treatment first is correct. Her husband is taking methotrexate, which inhibits dihydrofolate reductase and inhibits folic acid metabolism. During pregnancy, both men and women should stop taking methotrexate and have their medication switched by a specialist for 6 months and use effective contraception before trying for a baby. This is because in men, methotrexate can damage sperm, and in women, methotrexate can damage eggs and cause harm to the foetus, increasing the risk of complications such as neural tube defects, which can be potentially severe. Methotrexate can persist in a person's body for 6 months, hence why it should be stopped for this time period. Taking additional folic acid supplements will not significantly mitigate the risk of complications associated with methotrexate as it inhibits its metabolism. They should both use effective contraception during the time he is taking methotrexate as well.

She should take 400 micrograms of folic acid until the end of the first trimester is incorrect. This is standard advice to all women who are attempting to become pregnant and are not high-risk (e.g. the presence of obesity or taking antiepileptic drugs). This patient's BMI is above 30 kg/m² and although ordinarily she should be advised to take 5 mg instead, the fact her husband is taking methotrexate means that they should delay trying for a pregnancy for 6 months as methotrexate can lead to the production of damaged sperm and can persist in the body for up to 6 months.

She should take 5 milligrams of folic acid until the end of the first trimester is incorrect. Although this is appropriate advice for this patient as her BMI is above 30 kg/m², her husband is taking methotrexate and this means that they should delay trying for a pregnancy for 6 months as methotrexate can lead to the production of damaged sperm and can persist in the body for up to 6 months.

Her husband should use contraception and wait for 3 months after stopping treatment first is incorrect. Patients taking methotrexate that are trying for a baby should wait and use contraception for 6 months, not 3. This is because methotrexate can persist in a person's body for up to 6 months. They should both use effective contraception during the time he is taking methotrexate as well.

They should both take 5 milligrams of folic acid until the end of the first trimester is incorrect. As mentioned above, giving folic acid supplements would not significantly mitigate the risks associated with methotrexate use in pregnancy as it inhibits folic acid metabolism. It must be stopped for at least 6 months in both men and women.

Question:

A 59-year-old male presents to the urology clinic, having been referred by his GP. He has been complaining of passing blood in his urine on multiple occasions, as well as abdominal discomfort. He has felt 'under the weather' and has lost around 2kg in weight. On examination, there is a right-sided abdominal mass. He has no other co-morbidities and has a good functional status. Given the likely diagnosis, what treatment option is he likely to be offered first?

A.Radiotherapy alone

B.Radical nephrectomy

C.Chemotherapy alone

D.Radiotherapy and chemotherapy

E.Biological therapy

Answer:Radical nephrectomy

Explanation:

Radical nephrectomy is the most effective management option in renal cell carcinoma - RCC is usually resistant to radiotherapy or chemotherapy

Important for meLess important

Renal cell carcinoma typically presents with a triad of haematuria, abdominal mass and loin pain. There may be associated malaise and weight loss. Radiotherapy and chemotherapy may be offered but renal cell carcinoma is relatively resistant to these so surgery is often the first line option. Biological therapies can be used, but these are usually for those with extensive or metastatic disease or those with multiple co-morbidities.

Question:

A 34-year-old patient with no significant past medical history presents to the renal clinic after being referred by his GP. He has been experiencing severe headaches for six weeks, especially in the morning and when coughing. The doctor measures his blood pressure which is 178/142 mmHg. A few days after starting angiotensin-converting enzyme (ACE) inhibitors, the nephrologist notes a significant drop in his eGFR.

The GP runs a plasma aldosterone:renin ratio blood test:

Renin High

Aldosterone High

Given the blood tests result, what is the most likely diagnosis?

A.Adrenal carcinoma

B.Bilateral idiopathic adrenal hyperplasia

C.Heart failure

D.Phaeochromocytoma

E.Renal artery stenosis

Answer:Renal artery stenosis

Explanation:

Primary and secondary aldosteronism can be differentiated by looking at the renin levels. If renin is high then a secondary cause is more likely, i.e renal artery stenosis.

Important for meLess important

The correct answer is renal artery stenosis. The fact that plasma renin and aldosterone are both raised, suggests secondary hyperaldosteronism. Renal artery stenosis is a cause of secondary hyperaldosteronism. It often presents in younger patients with refractory hypertension. ACE inhibitors can worsen the stenosis, resulting in a drop in eGFR. This is consistent with the vignette of the patient who has refractory hypertension and reduced eGFR after starting ACE inhibitors.

Adrenal carcinoma is incorrect as this would cause primary hyperaldosteronism (low plasma renin and raised aldosterone). Adrenal carcinomas are exceedingly rare, and most cases are linked to a genetic cancer syndrome such as multiple endocrine neoplasia (MEN) types 1 and 2 or von Hippel-Lindau disease.

Bilateral idiopathic adrenal hyperplasia is incorrect as this would also present with primary hyperaldosteronism (low plasma renin, raised aldosterone due to negative feedback).

Heart failure is incorrect. Although this can cause secondary hyperaldosteronism, it is not in keeping with the clinical picture of refractory hypertension. Additionally, the patient is very young and there is no significant past medical history to suggest a cardiac cause.

Phaeochromocytoma is incorrect. This would usually present with intermittent hypertensive episodes and other systemic features such as paroxysmal palpitations, sweating, as well as tremors or anxiety. These are not mentioned in the vignette.

Question:

A 18-year-old man who is known to have hereditary spherocytosis is admitted to hospital with lethargy. Admission bloods show the following:

Hb 47 g/dL Male: (135-180)

Retics 0.3% 0.5-1.5%

What is the most likely explanation for these findings?

A.Haemolytic crisis

B.Recent ciprofloxacin therapy

C.Parvovirus infection

D.Sequestration crises

E.Angiodysplastic bowel lesions

Answer:Parvovirus infection

Explanation:

This man has had an aplastic crisis secondary to parvovirus infection. This is evidenced by the severe anaemia and reduced reticulocyte count.

Question:

Which one of the following is the most common type of Hodgkin's lymphoma?

A.Lymphocyte predominant

B.Nodular sclerosing

C.Lymphocyte depleted

D.Mixed cellularity

E.Hairy cell

Answer:Nodular sclerosing

Explanation:

Hodgkin's lymphoma - most common type = nodular sclerosing

Important for meLess important

Question:

A 30-year-old woman presents to the clinic with complaints of bloody diarrhoea for the last 6 months. She empties her bowel 5 times daily, which is associated with abdominal cramps and tenesmus. Laboratory investigations reveal raised fecal calprotectin levels. Colonoscopy shows widespread ulceration with preservation of adjacent mucosa, giving the appearance of polyps (pseudopolyps).

What is the most common disease pattern in this condition?

A.Ileitis

B.Perianal disease

C.Proctitis

D.Skip lesions

E.Toxic megacolon

Answer:Proctitis

Explanation:

Ulcerative colitis - inflammation starting at the rectum and not spreading beyond the ileocaecal valve

Important for meLess important

Proctitis is the correct response as this scenario describes a patient with ulcerative colitis. The history of bloody diarrhoea, abdominal cramps, and tenesmus, along with raised fecal calprotectin levels, point towards ulcerative colitis (UC). The presence of pseudopolyps confirms the diagnosis. Proctitis is the most common disease pattern in UC and is seen in 40-50% of the cases. Bloody diarrhoea, tenesmus, and mucoid discharge are the presenting features of proctitis. Inflammation in UC starts as proctitis and does not usually spread beyond the ileocaecal valve.

Ileitis is the most common disease pattern in Crohn's disease and not in UC. The presence of pseudopolyps rules out Crohn's disease in this scenario. Transmural inflammation with deep fissuring ulcers and fistula is seen in Crohn's disease.

Perianal disease is an incorrect response because it is not the most common disease pattern in UC. Perianal disease is more commonly seen in Crohn's disease than in UC.

UC is not characterised by skip lesions; it causes a continuous superficial inflammation of the gastrointestinal mucosa. Skip lesions are a characteristic feature of Crohn's disease. The term 'skip lesions' is used in Crohn's disease because these are the area of transmural inflammation that occur anywhere from mouth to anus with normal mucosa in between the lesions.

Toxic megacolon is a rare complication of UC and not the most common disease pattern. It is characterised by abnormal colonic dilatation and systemic upset.

Question:

A 45-year-old man presents to his GP with unilateral leg pain, which has been progressing in severity for the last 6 months, associated with mild weakness of the left leg on any activity. The pain radiates posteriorly down the patient’s left leg and is worse on walking, even for a few metres, and usually forces the patient to stop and sit down to recover. The pain seems to improve once the patient sits down or crouches down. Back and neurological examination is unremarkable.

The patient denies any history of smoking or cardiovascular conditions and his body mass index is 19.0 kg/m2.

What is the most likely diagnosis?

A.Ankylosing spondylitis

B.Conversion disorder

C.Peripheral arterial disease

D.Lumbar canal spinal stenosis

E.Mechanical back pain

Answer:Lumbar canal spinal stenosis

Explanation:

Spinal stenosis is a key differential in a patient who presents with claudication

Important for meLess important

Though the patient is presenting with unilateral leg pain that improves on rest, features in the history that point more towards to spinal stenosis over peripheral arterial include

Pain improving on sitting down or crouches down

Weakness of the leg

Lack of smoking history

Lack of cardiovascular history

Ankylosing spondylitis typically occurs in younger patients and rarely presents with leg pain. The most common presenting symptom for this condition is back pain.

Conversion disorder is a psychiatric description when a patient presents with musculoskeletal symptoms where no features in the history or examination can find a physical explanation for the patient’s symptoms. This is usually a diagnosis of exclusion and the features in this patient’s history point more towards a spinal stenosis over a psychiatric cause of the leg pain.

Peripheral arterial disease would be a differential but the lack of cardiac risk factors and the alleviating features of the pain suggest spinal stenosis. Claudication pain linked to peripheral arterial disease would be suggested more strongly if the pain was present after 100 metres or so of walking.

Mechanical back pain is differential but is less likely responsible for the leg pain features than spinal stenosis.

Question:

The GP is reviewing the routine blood results for a 67-year-old woman with a history of type 2 diabetes mellitus, giant cell arteritis and hypertension. Some of the results are as follows:

Hb 133 g/L Male: (135-180)

Female: (115 - 160)

Mean cell volume 88 fl 82-100 fl

Platelets 390 \* 109/L (150 - 400)

WBC 10.7 \* 109/L (4.0 - 11.0)

Neutrophils 8.4 \* 109/L (2.0 - 7.0)

Lymphocytes 1.4 \* 109/L (1.0 - 3.0)

What is the likely explanation for the abnormality?

A.Amlodipine

B.Dapagliflozin

C.Exenatide

D.Prednisolone

E.Ramipril

Answer:Prednisolone

Explanation:

Corticosteroids can induce neutrophilia

Important for meLess important

The abnormality is a slightly high neutrophil count of 8.4. Prednisolone is a corticosteroid that can be used in the treatment of giant cell arteritis. It can cause a high neutrophil count.

Amlodipine, an antihypertensive drug, is not known to cause neutrophilia. Leucopenia (a low white cell count) is listed as a rare side effect of amlodipine. Common side-effects include headache, flushing and ankle swelling.

Dapagliflozin is used in the management of type 2 diabetes mellitus. It is not associated with changes to white cell count. Common side effects include frequent urinary tract infections (due to the urinary excretion of high levels of glucose), dizziness and rash.

Exenatide is a subcutaneous injection used in the management of type 2 diabetes mellitus. It is not known to cause changes to white cell count. Side effects include nausea, vomiting and diarrhoea.

Ramipril is an antihypertensive. It does not cause neutrophilia. It has neutropenia listed as a rare side-effect. Other side effects include a dry cough, dizziness and headaches.

Question:

Mr. Ali is a 65-year-old gentleman who presents with increasingly severe abdominal pain and nausea. He has not opened his bowels for 4 days.

On examination, you note his observations include O2 saturations of 96%, respiratory rate of 20, heart rate of 120, and blood pressure of 90/70. He does not have a fever.

When you press on his abdomen, you note significant guarding and he recoils in pain when you remove your hand. You suspect that he has peritonism secondary to bowel obstruction and order an urgent abdominal x-ray.

The x-ray reveals Mr. Ali is suffering from large bowel obstruction due to a sigmoid volvulus. What is the single most appropriate way to treat Mr. Ali?

A.Admit Mr. Ali for observation and monitoring

B.Therapeutic flexible sigmoidoscopy

C.Urgent laparotomy

D.Arrange for a barium enema

E.Insertion of an NG tube and administration of IV fluids

Answer:Urgent laparotomy

Explanation:

In patients with sigmoid volvulus who have bowel obstruction with symptoms of peritonitis, skip the flexible sigmoidoscopy and treat with urgent midline laparotomy

Important for meLess important

The indications for surgical involvement in sigmoid volvulus are repeated failed attempts at decompression, necrotic bowel noted at endoscopy and suspected (or proven) perforation or peritonitis.

In patients with sigmoid volvulus who have bowel obstruction with peritonitis, skip the flexible sigmoidoscopy and treat with urgent midline laparotomy. Urgent laparotomy is needed to avoid bowel necrosis or perforation.

Question:

The medical emergency team is called to an 80-year-old man who has fainted in the cardiology ward whilst visiting a relative. He has been moved to a trolley, where he appears confused and is complaining of dizziness. An A-E examination is performed:

A: airway patent

B: no respiratory distress, sats 98% on air

C: radial pulse regular at 40 beats per minute, cool peripheries, blood pressure 85/55 mmHg, heart sounds 1 + 2 + 0

D: GCS 15/15, pupils equal and reactive to light

E: temperature 36.7ºC, nil other findings

An ECG shows sinus bradycardia with a rate of 42 beats per minute.

What is the immediate treatment for his bradycardia?

A.Give 3 milligrams atropine

B.Give 500 micrograms atropine

C.Give 500ml intravenous fluid stat

D.Start transcutaneous pacing

E.Synchronised DC cardioversion

Answer:Give 500 micrograms atropine

Explanation:

Patients with bradycardia and signs of shock require 500micrograms of atropine (repeated up to max 3mg)

Important for meLess important

500 micrograms atropine is the immediate treatment for bradycardia with adverse features (shock, syncope, heart failure or myocardial infarction) according to the Resuscitation Council Guidelines. Although little is known about this patient, an A-E examination has revealed sinus bradycardia with signs of shock - the patient has cool peripheries, and hypotension and is confused. Identifying the cause of bradycardia is important, and during the emergency call, efforts should be made to check for reversible causes (e.g. electrolyte abnormalities) and source the patient's medical notes. However, it is still important that the bradycardia is managed simultaneously to reduce the risk of further deterioration and possible cardiac arrest.

3 milligrams atropine is not the starting dose of atropine, but rather the maximum amount that can be given. If there is an insufficient reaction to 500 micrograms of atropine, further doses can be given until a total of 3mg has been given.

Give 500ml intravenous fluid stat will help to temporarily increase the cardiac output. However, the source of this patient's shock is not hypovolaemia, but bradycardia reducing the cardiac output. Giving fluid will not treat this patient's bradycardia.

Transcutaneous pacing is a method of temporarily pacing the heart in an emergency by delivering pulses of electric current through the chest which stimulates the heart to contract. It would be indicated as an interim measure if treatment with atropine had not been successful, and whilst awaiting the establishment of more permanent measures (i.e. transvenous pacing or a permanent pacemaker insertion).

Synchronised DC cardioversion is indicated not for bradycardia but for tachycardia with adverse features, where the shock will hopefully restore a normal cardiac rhythm.

Question:

A 23-year-old man presents with extensive 3rd-degree burns resulting from a spillage of fryer oil. You are asked to assess the patient to decide the volume of intravenous fluids required.

What tool should be used to most accurately take the necessary measurements?

A.LogMAR chart

B.Lund and Browder chart

C.ROSIER score

D.Snellen chart

E.The Rule of 9s

Answer:Lund and Browder chart

Explanation:

Lund and Browder chart is the most accurate way to asses the burns area

Important for meLess important

In this scenario, you should precisely assess the percentage of the surface area of skin that has been burned in this patient in order to judge the severity and guide treatment. The percentage area affected defines how much fluid should be given according to the Parkland formula: 4 x kilogram of body weight x %TBSA burned,

The Lund and Browder chart is a detailed diagram onto which you can outline the burned areas and assess in detail the amount of surface area affected. It should be used when an accurate measurement is required for any calculations.

The Rule of 9s is best used in quick assessments and is not as accurate as a Lund and Browder chart. It would work well as a quick end-of-the-bed assessment but shouldn't be used as an absolute guide for treatment.

The ROSIER score stands for Recognition of Stroke in the Emergency Room - it's used as a quick screen for a stroke during ED triage.

Both Snellen and LogMAR charts assess visual acuity.

Question:

A 65-year-old man presents to the Emergency Department with fever and pain in his perineum and scrotum. The symptoms began yesterday after two days of dysuria and urinary frequency.

On examination, he is stable and does not display signs of sepsis. Digital rectal examination demonstrates a tender, boggy prostate.

He is sent home with appropriate treatment.

One week after this, he presents to the GP. He has been symptom-free for two days. He is worried about his risk of developing prostate cancer, particularly as his father had it. He would like to have his prostate-specific antigen (PSA) measured to check that he is cancer-free. He does not engage in regular exercise, has not had a digital rectal examination since his visit to the hospital, and last ejaculated 24 hours ago.

Which of the following should the GP do?

A.Explain that there is no prostate cancer screening programme so he cannot have his PSA measured

B.Explain risks and benefits, wait for a month then measure his PSA

C.Explain risks and benefits, wait for 24 hours then measure his PSA

D.Explain risks and benefits then measure his PSA

E.Explain risks and benefits, perform a digital rectal examination then measure his PSA

Answer:Explain risks and benefits, wait for a month then measure his PSA

Explanation:

Measurement of PSA should be delayed for 1 month after prostatitis

Important for meLess important

The important part of this question is being aware of the factors that can affect the PSA. Vigorous exercise, ejaculation, and digital rectal examination can all raise the PSA level. For this reason, measurement should be delayed for 48 hours after one of these.

However, the clinical description at the beginning describes acute prostatitis. This raises the PSA and measurement of PSA should be delayed for at least one month after prostatitis.

It is also important to note that just because there is no national screening programme for prostate cancer, it is still acceptable and commonplace to measure the PSA when a patient requests to be checked. However, before doing so, patients should be counselled about the risk of false positives and negatives and the possible implications.

Question:

A 17-year-old woman attends the specialist clinic for fitting an intrauterine system (IUS). Whilst preparing to site the IUS, the clinician notices scarring around the anterior part of the genitals and an absent clitoris. After discussion, the patient states that she remembers having surgery approximately 10 years ago whilst on a family trip abroad, but can't remember the full details.

She states that she is happy with this, and does not want any further investigation or police involvement.

What is the next best step?

A.Contact the medical director

B.Provide the patient with self-referral pathway information

C.Report the incident to the police

D.Respect the woman's wishes

E.Seek further details from the patient's family

Answer:Report the incident to the police

Explanation:

Female genital mutilation in under 18 - report to police

Important for meLess important

This scenario describes a 17-year-old woman who has been identified as a likely victim of female genital mutilation (FGM). As this patient is under 18 years of age, the single best management step is to report the incident to the police. FGM is illegal in the UK.

Contact the medical director is an incorrect answer. Whilst involving senior members of staff is sensible, the single best answer in this situation for a patient under the age of 18 years old would be to involve the police to allow an investigation to be conducted.

Provide the patient with self-referral pathway information is not the correct answer. Whilst the patient should be provided with information about FGM, they have already expressed that they do not want further investigation. Given the patient's age, self-referral is not appropriate and direct reporting to the police should be made.

Respect the woman's wishes is an incorrect answer. Whilst the woman's wishes should be acknowledged, due to her being under 18 years of age, the incident must be reported to the police to allow investigation.

Seek further details from the patient's family is incorrect. Not only is this a breach of confidentiality, but contacting the patient's family may affect the police investigation into the FGM and is therefore not appropriate.

Question:

A 64-year-old woman presents to her GP with a five-day history of feeling right earache and feeling generally unwell. In the last day she has developed painful blistering around the ear and her husband has told her that her facial movements appear different. Her past medical history includes hypertension, for which she takes amlodipine.

On examination, a vesicular rash is noted around the right ear and the patient has a visible right-sided facial palsy. Her observations are normal and she is apyrexial.

Given the likely diagnosis, which of the following is the most appropriate treatment plan?

A.Corticosteroids

B.Intravenous aciclovir

C.Intravenous aciclovir and intravenous corticosteroids

D.Oral aciclovir

E.Oral aciclovir and oral corticosteroids

Answer:Oral aciclovir and oral corticosteroids

Explanation:

Treatment of Ramsay Hunt syndrome consists of oral aciclovir and corticosteroids

Important for meLess important

The diagnosis here is that of Ramsay Hunt syndrome, given the palsy and characteristic auricular pain and rash. Management includes both antivirals and corticosteroids; given that the patient is systemically well on examination and observations are normal, these can be given orally rather than intravenously.

The other options are therefore incorrect; aciclovir is sometimes used alone for Ramsay Hunt syndrome, but the general consensus is to use corticosteroids in addition to the antiviral agent.

Corticosteroid alone would be used in Bell's palsy - however, the diagnosis is much more likely to be Ramsay Hunt syndrome here, given the rash and ear pain.

Question:

You review a 70-year-old woman who is on multiple medications. For the past few months she has noticed bilateral tinnitus and hearing loss. Which one of the following medications may be responsible?

A.Lofepramine

B.Ezetimibe

C.Furosemide

D.Tramadol

E.Digoxin

Answer:Furosemide

Explanation:

Loop diuretics may cause ototoxicity

Important for meLess important

Ototoxicity is a recognised side-effect of loop diuretics.

Question:

You are an F2 doctor working at a local general practice. It is the end of the day, and your last patient comes in to see you. Jane is a 22-year-old student who requires a non-urgent intimate examination. You realise that no one is available to help chaperone as the other doctors are all busy, and the patient is nervous and uncomfortable with undergoing the examination without one. What is the best course of action?

A.Offer to give the patient an appointment for tomorrow morning where a chaperone will be available

B.Explain the routine nature of the exam and try to persuade the patient into consenting

C.Tell the patient that they do not require a chaperone because you have done this before

D.Wait an hour as a GP will become available at the practice to chaperone Jane

E.Treat the patient without completing a proper examination

Answer:Offer to give the patient an appointment for tomorrow morning where a chaperone will be available

Explanation:

Option 1 is correct as the GMC guidelines state 'If either you or the patient does not want the examination to go ahead without a chaperone present, or if either of you is uncomfortable with the choice of chaperone, you may offer to delay the examination to a later date when a suitable chaperone will be available, as long as the delay would not adversely affect the patients health.'

In this case, the patient is uncomfortable with undergoing the examination without a chaperone, and it's likely to be non-urgent in nature, so it can be rebooked for tomorrow.

The patient is clear that they would feel more comfortable with a chaperone. Therefore, further explaining the routine nature of the exam, and trying to persuade the patient into consenting is incorrect.

Explaining that you've done it before and that they don't require a chaperone is wrong in itself, as all patients are entitled to chaperones if they desire it.

Waiting an hour for a GP, while not strictly wrong, is not an efficient use of time in this scenario and is therefore deemed as incorrect.

Treating the patient without completing a proper examination is incorrect as GMC guidelines also state that 'If you assess, diagnose or treat patients you must; adequately assess the patients conditions, taking account of their history (including the symptoms and psychological, spiritual, social and cultural factors), their views and values; where necessary, examine the patient'.

Reference: http://www.gmc-uk.org/guidance/ethicalguidance/30200.asp

Question:

A 35-year-old woman presents to GP following a staging CT for her recently diagnosed renal cell (RCC) carcinoma. She was told following the scan that there were gallstones present within her gall bladder and she wishes to discuss the management options with you. She has no history of abdominal pain and is fit and well otherwise. She is to undergo left-sided nephrectomy for her RCC in 3 weeks.

On examination, her abdomen is soft and tender over the left flank. no masses are palpable.

How should you manage this lady?

A.ERCP (Endoscopic Retrograde cholangiopancreatography)

B.MRCP (Magnetic resonance cholangiopancreatography)

C.Laparoscopic cholecystectomy at the time of nephrectomy

D.Reassurance

E.Laparoscopic cholecystectomy 3 months following nephrectomy

Answer:Reassurance

Explanation:

Reassure people with asymptomatic gallbladder stones.

Stones that are found incidentally, as a result of imaging investigations unrelated to gallstone disease in people who have been completely symptom-free for at least 12 months before diagnosis do not require intervention.

They must be found in a normal gallbladder and normal biliary tree. Symptomatic patients or those with stones within the common bile duct (CBD) do require intervention to clear the CBD.

This can be done:

Surgically at the time of laparoscopic cholecystectomy or

With endoscopic retrograde cholangiopancreatography (ERCP) before or at the time of laparoscopic cholecystectomy.

Question:

You are a medical student in theatre one morning observing a gynaecology surgeon with a posterior vaginal wall prolapse repair. The patient has been anaesthetised, but before the operation commences, the surgeon asks you to come and perform a vaginal examination on the patient, as it is a valuable learning opportunity. What is the most appropriate response to this situation?

A.Perform the examination as you have never examined a vaginal prolapse before and so would be valuable for future reference

B.Perform the examination, but visit the patient afterwards to explain and gain consent retrospectively

C.Ask if you can leave the theatre quickly to ask consent from the patient's family who are waiting on the ward nearby

D.Refuse to examine the patient

E.Perform the examination but make sure you gain consent from patient's on future theatre lists you attend

Answer:Refuse to examine the patient

Explanation:

The fourth option is correct. It would be inappropriate to perform such an examination without the patient's consent, and so this should be sought before the theatre list has started whilst the patient is competent. The family do not have the authority to give consent in this particular situation. Further information can be found on the GMC's website and their explanatory guidance on consent.

http://www.gmc-uk.org/guidance/ethicalguidance/consentguidanceindex.asp

Question:

A 50-year-old motorcyclist is involved in a head-on collision with a heavy goods vehicle. The helicopter emergency service attends the scene.

They find that the man's Glasgow Coma Scale (GCS) is 7 (E2, V1, M5) and he has no air entry on the left side of the chest, with an open fractured neck of femur on the right hand side.

His observations are as follows:

Temperature: 37.6ºC.

Heart rate: 110bpm.

Blood pressure: 60/40mmHg.

SpO2: 95% on air.

Respiratory rate: 22/min.

His fractured femur is reduced at the scene but in view of his low GCS the decision is made to intubate him at the scene.

What is the best agent for induction of anaesthesia?

A.Propofol

B.Suxamethonium

C.Desflurane

D.Ketamine

E.Thiopental Sodium

Answer:Ketamine

Explanation:

Ketamine is a good anaesthetic agent for haemodynamically unstable patients

Important for meLess important

Many anaesthetic agents cause hypotension. This man may have a haemothorax and may have had further bleeding due to his fractured neck of femur, and is hypotensive. Thus, giving him an anaesthetic agent which further reduces his blood pressure may be very dangerous.

Ketamine is commonly used in the pre-hospital setting both for pain relief and to facilitate intubation. It generally preserves blood pressure and does not cause cardiosuppression.

Propofol may cause hypotension through vasodilation and myocardial depression, so is not the best option.

Suxamethonium is a paralytic agent, so is not suitable for induction of anaesthesia, but may well be required alongside an induction agent during rapid sequence intubation.

Desflurane is more commonly used as an agent to maintain anaesthesia, and is not a commonly used induction agent due to its irritant effects.

Thiopental sodium causes both myocardial depression and hypotension.

Question:

A 21 years old woman sustains a hockey stick head injury. She is initially dazed but rapidly recovers and continues with the match. Thirty minutes later she collapses and is taken to the emergency department. A CT scan was performed which shows a biconvex mass.

What type of injury has she most likely sustained?

A.Acute subdural haemorrhage

B.Accidental finding of intracranial mass

C.Subarachnoid haemorrhage

D.Cerebral contusion

E.Acute extradural haemorrhage

Answer:Acute extradural haemorrhage

Explanation:

Extradural haemorrhage appears as a biconvex on imaging

Important for meLess important

The lucid interval described in the scenario is typical of extradural haemorrhage. The bleeding occurs between the skull and the outermost layer of the brain called dura mater, therefore extradural haemorrhage appears as a biconvex.

The bleeding usually occurs due to an injury to the head and results bleeding from the middle meningeal artery.

Acute subdural haemorrhage occurs due to vein's rupture and results in the collection between brain and dura mater. These veins rupture due to sudden jolts or shake to the brain. It usually appears as crescent-shaped on CT scan.

Sub-arachnoid haemorrhage would lead to stroke. The patient would usually present with sudden severe headache and vomiting.

Cerebral contusion is a bruise of the brain tissue and usually occurs due to small blood vessel leaks into the brain tissue. It usually result in increase intracranial pressure. It usually occurs due to the brain coming to sudden stop against the inner surface of the skull. The typical causes include motor vehicle accidents or when the head strikes the ground.

Question:

A 45-year-old man attends the clinic as he has developed swelling of both breasts. A systematic enquiry was otherwise unremarkable. He has a past medical history of heart failure for which he takes bisoprolol, furosemide, digoxin, amiodarone, and ramipril.

What is the most likely cause?

A.Amiodarone

B.Bisoprolol

C.Digoxin

D.Furosemide

E.Ramipril

Answer:Digoxin

Explanation:

Digoxin can cause drug-induced gynaecomastia

Important for meLess important

Digoxin is correct. Digoxin is a well known cause of gynaecomastia. Digoxin is a cardiac glycoside that increases the force of myocardial contraction and reduces conductivity within the atrioventricular (AV) node. Indications for digoxin include rate control of atrial fibrillation or flutter and management of heart failure due to its positive inotropic effect. Other side effects include arrhythmias, nausea and vision disorders.

Amiodarone is incorrect. Gynaecomastia is not a known side effect of amiodarone. Side effects of amiodarone include arrhythmias, liver fibrosis, hyperthyroidism and cutaneous manifestations.

Bisoprolol is incorrect. Gynaecomastia is not a known side effect of bisoprolol. Side effects of bisoprolol include bradycardia, confusion, diarrhoea, dry eyes, and sleep disorders.

Furosemide is incorrect. Whilst this diuretic does not cause gynaecomastia, spironolactone is a well known cause. Side effects of furosemide include dizziness, hypokalemia, hyponatraemia, metabolic alkalosis and muscle spasms.

Ramipril is incorrect. Gynaecomastia is not a known side effect of ramipril. Side effects of ramipril include alopecia, angioedema, cough, hypotension, and renal impairment.

Question:

An 82-year-old lady presents with urinary straining, poor flow, incomplete emptying of the bladder, and urinary incontinence. Urodynamics demonstrates a voiding detrusor pressure of 90 cm H20 (normal value < 70 cm H2O) and peak flow rate of 5 mL/second (normal value > 15 mL/second). What is the most likely diagnosis?

A.Urge incontinence

B.Overflow incontinence

C.Stress incontinence

D.Functional incontinence

E.Mixed incontinence

Answer:Overflow incontinence

Explanation:

Normal bladder function should have a voiding detrusor pressure rise of < 70 cm H20 with a peak flow rate of > 15 ml/second A high voiding detrusor pressure with a low peak flow rate is indicative of bladder outlet obstruction. Therefore the most likely answer is overflow incontinence. Voiding symptoms (e.g. straining, poor flow, and incomplete emptying of the bladder) are also suggestive of bladder outlet obstruction.

Question:

A 57-year-old man is found to have a daytime-average ambulatory blood pressure monitoring (ABPM) reading of 162/100 mmHg. His calculated QRISK-3 score is 13.8%.

He is of Pakistani background and has no significant past medical history.

In addition to lifestyle advice, what pharmacological management should initially be offered?

A.A calcium-channel blocker only

B.A statin and a calcium-channel blocker

C.A statin and an angiotensin-converting enzyme (ACE) inhibitor

D.An angiotensin-converting enzyme (ACE) inhibitor and a calcium-channel blocker

E.An angiotensin-converting enzyme (ACE) inhibitor only

Answer:A statin and a calcium-channel blocker

Explanation:

A patient over 55 years with stage 2 hypertension and a QRisk score of >10% requires a calcium channel blocker, atorvastatin and lifestyle advice as first-line therapy

Important for meLess important

A statin and a calcium-channel blocker (CCB) is the correct answer. NICE guidance for managing hypertension recommends that patients with stage 2 hypertension (ABPM > 150/95) should be offered drug treatment regardless of age. For patients over 55, a CCB (e.g. amlodipine) is the recommended first-line therapy. As the patient's QRISK score is greater than 10%, he should also be offered a statin (e.g. atorvastatin).

A calcium-channel blocker only is incorrect. Although a CCB (e.g. amlodipine) is the NICE-recommended first-line therapy for the patient in the vignette (as he is over 55), he has a QRISK score greater than 10% so should also be offered a statin.

A statin and an angiotensin-converting enzyme (ACE) inhibitor is incorrect. An ACE inhibitor would not be the first-line treatment for this patient. ACE inhibitors are the first line in patients under 55 (who are not of black African or African-Caribbean ethnicity) or those with type 2 diabetes mellitus (T2DM), regardless of age or race. As this patient is over 55, is not of black African or African-Caribbean ethnicity, and does not have T2DM, a CCB is more appropriate first-line.

An angiotensin-converting enzyme (ACE) inhibitor only is incorrect. ACE inhibitors are the first line in patients under 55 (who are not of black African or African-Caribbean ethnicity) or those with type 2 diabetes. This response also does not include a statin, which should be offered based on the patient's QRISK score.

An angiotensin-converting enzyme (ACE) inhibitor and a calcium-channel blocker are incorrect. A second antihypertensive agent would be added if the patient failed to achieve adequate control on a single agent. This response also does not include a statin, which should be offered based on the patient's QRISK score.

Question:

A 21-year-old woman presents to the emergency department after falling unwell soon after a trip to India. She has had a fever for nine days, associated with malaise and a headache. She is also experiencing constipation with generalised abdominal pain.

On examination, her abdomen is soft and non-tender. A blanching rash of erythematous maculopapular lesions is noted on her torso. Her temperature is 39ºC and her heart rate is 55 beats per minute.

Whilst she has had her childhood vaccinations, she admits that she did not attend any travel vaccine clinic before her trip.

What is the likely diagnosis?

A.Dengue fever

B.Hepatitis A

C.Malaria

D.Meningococcal disease

E.Typhoid fever

Answer:Typhoid fever

Explanation:

Fever, abdominal pain, constipation, 'rose' spots → ?typhoid fever

Important for meLess important

This patient presents with typical features of typhoid fever which is caused by infection with Salmonella typhus. Typical features, as seen in this patient, include fever (which is prolonged), influenza-like symptoms, abdominal pain, constipation, 'rose' spots and relative bradycardia. The suspicion is heightened as the patient has been to the Indian subcontinent, where typhoid fever is endemic and has not had any travel vaccinations. Typhoid fever should be suspected in any returning traveller with prolonged fever and is typically included in travel vaccinations.

Dengue fever is another cause of fever in the returning traveller and is also endemic in South East Asia. Patients with dengue fever may present with non-specific fever, arthralgia and malaise. They may also report gastrointestinal symptoms such as abdominal pain. However, constipation, 'rose' spots and relative bradycardia are not associated with dengue fever. In patients with severe dengue fever, there may be signs and symptoms of haemorrhage, such as petechiae, epistaxis, menorrhagia etc. These are not present in this patient.

Hepatitis A is another condition endemic to India and is included in pre-travel vaccinations. Whilst also associated with fever, malaise and abdominal symptoms, the hallmarks of hepatitis A infection are jaundice, right upper quadrant pain and tender hepatomegaly. None of these features is seen in this patient.

Malaria is an important cause of fever in the returning traveller and is present in India. The brief does not state whether the patient has been taking antimalarials. Fever and influenza-like symptoms are also seen in malaria, although the fever characteristically occurs at regular intervals of 48-72 hours. Malaria is associated with tachycardia, not relative bradycardia, and diarrhoea, not constipation. It is not associated with 'rose spots'. This brief is more in keeping with typhoid fever.

All causes of fever should be considered in the returning traveller, including meningococcal disease. This is particularly important in this patient, who has a new rash and headache. However, the rash is described as non-blanching and, beyond headache, the patient does not have neurological symptoms and signs such as neck stiffness, photophobia and confusion. Abdominal pain, constipation and relative bradycardia are not associated with meningococcal disease. Meningococcal disease is not associated with prolonged fever.

Question:

A 21-year-old woman attends for her annual asthma review. She reports having her usual symptoms of shortness of breath, wheeze and chest tightness around 3 times per week. These symptoms typically occur at night and she wakes up feeling wheezy around once per week. She currently only uses a salbutamol inhaler as required and gets good relief from this.

The patient otherwise has no medical history, takes no other medications and has no allergies.

How should this patient be managed?

A.Add a budesonide inhaler

B.Add a salmeterol inhaler

C.Add oral montelukast and a beclomethasone inhaler

D.Continue current salbutamol only

E.Switch to regular salbutamol

Answer:Add a budesonide inhaler

Explanation:

Adult with asthma not controlled by a SABA - add a low-dose ICS

Important for meLess important

Per NICE (2017) guidelines, all patients should be prescribed a SABA (short-acting bronchodilator) as step 1 of treatment. Patients who have symptoms 3 or more times per week or night waking, either at initial diagnosis or at review, should also be prescribed a low-dose inhaled corticosteroid (ICS) inhaler. This is step 2 of treatment. Step 2 is also required for patients who have had an acute exacerbation requiring oral corticosteroids in the previous two years. This patient has poorly controlled symptoms on her SABA alone, with both night waking and frequent symptoms. She, therefore, requires a low-dose ICS. The only ICS inhaler on the list is budesonide.

Salmeterol is a long-acting beta-agonist. LABAs are used in the treatment of asthma as step 4 of treatment if a patient is not controlled with a SABA, low-dose ICS and a trial of leukotriene receptor antagonist (LTRAs). Add a salmeterol inhaler is therefore not correct.

As discussed, LTRAs such as montelukast are added if a patient is still not controlled on a low-dose ICS and a SABA. It would therefore not be appropriate to add montelukast and a beclomethasone inhaler currently. Montelukast may be appropriate if the patient's asthma is still not controlled by her new regime. Beclomethasone is another example of an inhaled corticosteroid, so it would be appropriate to trial this without montelukast.

Continue current salbutamol only is inappropriate. The patient has poorly controlled asthma, as evidenced by her frequency of symptoms and night-time waking. She is at greater risk of morbidity and mortality from asthma if her symptoms are not controlled. She, therefore, requires escalation of treatment.

There is no role for regular salbutamol in the management of asthma. There is no evidence that it improves outcomes, and in fact, it may even worsen outcomes due to the downregulation of beta receptors. These receptors are important for bronchodilation.

Question:

A 42-year-old woman attends the emergency department with a 1-week history of intermittent palpitations. She denies chest pain or shortness of breath and there is no history of syncope. Her past medical history includes asthma for which she takes her regular salbutamol and beclomethasone inhalers.

On examination, her heart rate is 84bpm with a blood pressure of 124/76 mmHg. On auscultation, her chest is clear and heart sounds are normal.

An ECG is taken:

© Image used on license from Dr Smith, University of Minnesota

Which of the following is the most appropriate management for this patient?

A.Amiodarone

B.Anticoagulation for 3 weeks followed by cardioversion

C.Bisoprolol

D.Immediate synchronised DC cardioversion

E.Verapamil

Answer:Anticoagulation for 3 weeks followed by cardioversion

Explanation:

This ECG demonstrates atrial fibrillation (AF). The rhythm is irregularly irregular and there are no visible P waves.

Common presenting symptoms of atrial fibrillation include the sensation of palpitations as described by this patient whilst other patients may report no symptoms at all and the finding is incidental. Managing atrial fibrillation can be divided into rate control and rhythm control. Patient factors favouring rhythm control include:

Age <65 years

First presentation of AF

Symptomatic.

In contrast, patients over the age of 65 years or those with a history of ischaemic heart disease are usually treated with rate control. This patient meets the criteria for rhythm control. As the onset of palpitations has been ongoing for 1 week, it is not advised to cardiovert immediately due to the risk of atrial thrombosis. Therefore, if a patient has been in atrial fibrillation for >48 hours, they should be anticoagulated for 3 weeks prior to cardioversion.

Amiodarone is a drug used to pharmacologically convert patients into sinus rhythm. However, as it is unclear how long this patient has been in atrial fibrillation, immediate pharmacological cardioversion increases the risk of dislodging an atrial thrombus causing further downstream complications.

Bisoprolol is a method of rate control. However, it is contraindicated in this patient with a history of asthma.

Immediate synchronised cardioversion would be indicated if there were signs of shock including heart failure or hypotension. As these are not present and the patient is otherwise stable, immediate synchronised cardioversion is not the recommended treatment here.

Verapamil is a rate-controlling calcium channel blocker that can be used to rate control a patient with AF. However, as this patient is young and symptomatic, rhythm control should be tried initially.

Question:

A 60-year-old woman presents with a tremor. Which one of the following features would suggest a diagnosis of essential tremor rather than Parkinson's disease?

A.Difficulty in initiating movement

B.Tremor is worse following alcohol

C.Postural instability

D.Unilateral symptoms

E.Tremor is worse when the arms are outstretched

Answer:Tremor is worse when the arms are outstretched

Explanation:

Difficulty in initiating movement (bradykinesia), postural instability and unilateral symptoms (initially) are typical of Parkinson's. Essential tremor symptoms are usually eased by alcohol.

Question:

A 66-year-old male is admitted with a 2-day history of feeling unwell. You are asked by the nurse to review the patient as they are concerned about his observations. He is complaining of abdominal pain. On examination, you find the patient to have a distended abdomen which is tympanic on percussion with guarding on superficial palpation. Bowel sounds are absent. Blood pressure is 88/42 mmHg, and heart rate is 120bpm. An urgent CT scan shows perforation of the sigmoid colon, secondary to a large lesion causing bowel obstruction.

The patient undergoes emergency laparotomy.

Which of the following surgical procedures is the patient most likely to have had?

A.End colostomy

B.End ileostomy

C.Ileocolic anastomosis

D.Loop ileostomy

E.Total colectomy

Answer:End colostomy

Explanation:

In an emergency setting, if a colonic tumour is associated with perforation the risk of an anastomosis is greater → end colostomy

Important for meLess important

In the emergency setting where the bowel has perforated, the risk of colon-colon anastomosis is much greater. This is because it may lead to an anastomotic leak, resulting in the release of the bowel contents into the intraabdominal space. Therefore, an end colostomy is often safer and can be reversed at a later date.

Ileostomy (both end and loop) is not indicated for this patient due to the location of the bowel perforation being in the distal colon.

Ileocolic anastomoses are relatively safe even in the emergency setting and do not need to be de-functioned. However, an ileocolic anastomosis would not be appropriate for this patient as the obstructing lesion is located in the distal colon rather than the proximal colon.

Total colectomy is the removal of the entire large bowel; it is performed when lesions/pathology involve multiple areas throughout the bowel. Indications for this include ulcerative colitis not responding to medical management and familial adenomatous polyposis (FAP). As the lesion here is localised to the sigmoid colon, a total colectomy would not be appropriate.

Question:

A 79-year-old man presents to the emergency department with pain in his left leg which has come on over the last 2 hours. The leg was pale on examination. The patient is unable to move the left leg when asked and the leg is tender when pressed. You are able to palpate dorsalis pedis in the right foot but it is absent in the left foot, as is the posterior tibial pulse.

His past medical history includes atrial fibrillation and he tells you he has been a lot less active over the past few months and is a non-smoker. Family history includes the patient's father dying from a pulmonary embolus.

Given the most likely diagnosis, what is the initial management that should be undertaken?

A.Paracetamol and codeine

B.Paracetamol, codeine, IV heparin, and vascular review

C.Paracetamol, iloprost and atorvastatin

D.Request a vascular review

E.Rivaroxaban and early ambulation through light physical activity

Answer:Paracetamol, codeine, IV heparin, and vascular review

Explanation:

The initial management of acute limb ischaemia includes analgesia, IV heparin and vascular review

Important for meLess important

Paracetamol, codeine, IV heparin, and vascular review is the correct option. This patient has got acute limb-threatening ischaemia and it occurs when there is blockage of a peripheral artery. It is frequently seen in the background of peripheral vascular disease. This patient has multiple risk factors (for example age and inactivity) for the development of this condition, including atrial fibrillation. In acute limb ischaemia, the symptoms develop acutely and are characterised by the 6 P's: pain, pulseless, pale, paralysis, paraesthesia, and perishingly cold. The initial management of this condition involves analgesia, IV heparin to prevent thrombus propagation, and vascular review.

Paracetamol and codeine is not correct. Simply giving analgesia to this patient could lead to fatal consequences for the limb. IV heparin is needed to prevent the propagation of a thrombus and the patient also needs to be seen by the vascular team for potential definitive management (through intra-arterial thrombolysis or surgical embolectomy for example).

Paracetamol, iloprost and atorvastatin is incorrect. This is the management for Raynaud's phenomenon. Raynaud's phenomenon is characterised by an exaggerated vasoconstriction response of the arteries in our extremities in response to cold or emotional stress. Raynaud's syndrome tends to present in young women or in those with autoimmune diseases. It will often have bilateral symptoms, making the diagnosis unlikely.

Request a vascular review is incorrect. Whilst this patient does need to be seen by the vascular team for potential definitive management this is not the only thing we need to ensure is done in the management. Analgesia must be provided to alleviate pain and IV heparin is needed to prevent the propagation of a thrombus.

Rivaroxaban and early ambulation through light physical activity are not correct. This is the management for a DVT. Deep vein thrombosis is the formation of a clot in a deep vein. It would present with tenderness in the calf that is usually unilateral, however, we often see skin changes, calf swelling, and venous distension. The family history of a pulmonary embolus would support this differential as well. It is often caused by prolonged stasis. Our patient has been sitting around more recently, but this option would not explain the fact the limb is pale.

Question:

A 23-year-old male has been on antipsychotics for the past few months. He has been suffering from a side-effect of this drug, that you grade as severe, which causes repetitive involuntary movements including grimacing and sticking out the tongue. This side-effect is known to arise only in individuals who have been on antipsychotic for a while.

Which medication is therefore most suitable to treat this side-effect?

A.Procyclidine

B.Tetrabenazine

C.Propranolol

D.Benztropine

E.Lorazepam

Answer:Tetrabenazine

Explanation:

Tetrabenazine may be used to treat moderate/severe tardive dyskinesia

Important for meLess important

This patient is suffering from tardive dyskinesia. The episode has been described as severe and so the most appropriate treatment is tetrabenazine.

Propranolol is useful for akathisia (restlessness).

Procyclidine and benztropine are useful for acute dystonia.

Lorazepam could be used to calm a patient who is having a psychotic episode (among many other indications)

Question:

A 58-year-old man with a longstanding history of type 2 diabetes mellitus and stage 3 chronic kidney disease is referred by his GP as he is complaining of back pain arising over a few weeks.

His current observations are temperature 38.3 ºC, heart rate 95/min, respiratory rate 20/min, and blood pressure 140/82 mmHg.

On examination, you find the patient lying on the left side with his hips slightly flexed. Asking him to lie supine for palpation of the abdomen causes pain in his left hip and back. His pain is worsened when you ask to flex his hip against resistance and when you ask him to hyperextend his hip. His abdomen is soft and non-tender.

What is the most appropriate initial management of this condition?

A.IV antibiotics and percutaneous drainage

B.IV antibiotics and urgent laparoscopy

C.IV antibiotics only

D.Oral dexamethasone and oncological review

E.NSAIDs and tamsulosin

Answer:IV antibiotics and percutaneous drainage

Explanation:

Psoas abscess - percutaneous drainage is the initial approach and successful in around 90% of cases

Important for meLess important

This patient is affected by an iliopsoas abscess. This condition often presents non-specifically, delaying or hindering diagnosis- hence the presence of risk factors for immunosuppression such as diabetes and renal failure should increase the index of suspicion. The diagnosis is also supported by the subacute timeframe of back pain and the examination suggestive of iliopsoas irritation, given the discomfort upon hip extension- the 'psoas sign'.

CT is the gold standard investigation, alongside with bloods to confirm infection and blood and abscess material cultures.

The most appropriate initial management for iliopsoas abscesses consists of percutaneous drainage and prompt administration of IV antibiotics. This is successful in up to 90% of the cases.

Antibiotics alone are unlikely to be curative.

IV antibiotics and urgent laparoscopy would be warranted if there were high clinical suspicion of a retrocaecal appendix, an important differential diagnosis of an iliopsoas abscess. This, however, would present with pain in the right lower quadrant of the abdomen upon hip extension, and would have a more acute onset.

Oral dexamethasone and oncological review would be indicated in neoplastic spinal cord compression. This would also initially present with back pain, accompanied by neurological deficits with disease progression.

NSAIDs and tamsulosin are indicated in the treatment of acute renal colic in suspected nephrolithiasis. This would present with waxing and waning pain radiating from the flank to the labium/scrotum and haematuria.

Question:

A 68-year-old woman is assessed in the breast clinic after having an abnormal mammogram. Clinical exam of the breast reveals a small fixed lump in the right breast. What is the most common type of breast cancer?

A.Invasive lobular carcinoma

B.Inflammatory breast cancer

C.Invasive ductal carcinoma (no special type)

D.Paget's disease of the nipple

E.Tubular breast cancer

Answer:Invasive ductal carcinoma (no special type)

Explanation:

Invasive ductal carcinoma (no special type) is the most common type of breast cancer

Important for meLess important

Question:

A 25-year-old female patient presents to her GP due to a severe throbbing headache which is worst first thing in the morning. This has been happening for several weeks with no response to paracetamol. She has also been vomiting on most mornings and feels that her vision has been blurry.

Her pupils are equal and reactive and systemic examination is normal.

Which of the following would you expect to see on fundoscopy?

A.Blurring of optic disc margin

B.Increased arterial reflex

C.Prominent optic cup

D.Venous pulsation

E.Scattered retinal pigmentation

Answer:Blurring of optic disc margin

Explanation:

Papilloedema is associated with blurring of optic disc margin on fundoscopy

Important for meLess important

This patient has raised intracranial pressure, the cause of which is unclear. This is a classic history, with a headache worse in the morning, associated with blurred vision and vomiting. Therefore, papilloedema would be expected on fundoscopy. Of the options given, only blurring of the optic disc margin is consistent with papilloedema.

Loss of optic cup and loss of venous pulsation would be seen in papilloedema. Increased arterial reflex is a feature of hypertensive retinopathy. Retinal pigmentation occurs in retinitis pigmentosa.

Question:

An 80-year-old man presented to the emergency department yesterday after suffering right-sided arm weakness and facial droop. He has a background of hypertension and high cholesterol. He takes amlodipine and atorvastatin and has no known drug allergies.

His ECG showed atrial fibrillation. Brain imaging showed an ischaemic stroke and he was subsequently treated with aspirin and alteplase.

He still has right sided weakness but his facial droop has improved.

What is the most appropriate management plan with regards to the patient's anticoagulation?

A.Start anticoagulation today

B.Aspirin daily, start anticoagulation after 2 weeks

C.Clopidogrel daily, start anticoagulation after 4.5 hours

D.Aspirin daily, start anticoagulation after 7 days

E.Clopidogrel daily, start anticoagulation after 7 days

Answer:Aspirin daily, start anticoagulation after 2 weeks

Explanation:

A patient with AF + an acute stroke (not haemorrhagic) should have anticoagulation therapy started two weeks after the event

Important for meLess important

Aspirin daily, start anticoagulation after 2 weeks is the correct answer. NICE guidelines state that patients with atrial fibrillation (AF) who have had a haemorrhagic stroke ruled out should be offered aspirin daily and started on long term anticoagulation after two weeks. The aspirin treatment in this question is the treatment of an acute stroke, it is not secondary prevention.

Starting anticoagulation today would not be recommended. Early oral anticoagulation increases the risk of intracranial haemorrhage.

Clopidogrel or another antiplatelet can be offered if the patient is allergic to or genuinely intolerant of aspirin but this is not the case. This question is difficult as clopidogrel is recommended in secondary prevention of stroke. In practice this would mean prescribing aspirin for two weeks and switching to clopidogrel afterwards as the antiplatelet of choice. This is not an answer option however as the question is regarding anticoagulation as the patient has AF.

Starting anticoagulation after 7 days would go against the current guidelines as explained above.

Question:

A woman who is 31 weeks pregnant presents with a rash on her abdomen and thighs:

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The rash is very itchy and she is having difficulty sleeping at night. What is the most likely diagnosis?

A.Primary herpes simplex infection

B.Pityriasis rosea

C.Polymorphic eruption of pregnancy

D.Pemphigoid gestationis

E.Pompholyx

Answer:Polymorphic eruption of pregnancy

Explanation:

Question:

A mother presents to her GP with her six-week-old child. She is worried he may have a tummy ache due to episodes of vomiting and crying. The mother reports her child vomits his milk after most feeds and constantly cries during and even when laid down. They are non-projectile and non-bilious.

He was born at 38 weeks via vaginal delivery, and the pregnancy was uncomplicated. He lives with his mum and dad.

On examination, the child’s weight is appropriate for his growth chart. His heart rate is 138bpm, O2 saturation of 96%, respiratory rate 40/min, and temperature 37.5ºC.

What is the most likely diagnosis?

A.Cow's milk protein intolerance

B.Duodenal atresia

C.Gastro-oesophageal reflux

D.Gastroenteritis

E.Pyloric stenosis

Answer:Gastro-oesophageal reflux

Explanation:

Infant < 8 weeks, presents with milky vomits after feeds, often after being laid flat, excessive crying → ? GORD

Important for meLess important

Gastro-oesophageal reflux is correct. This is the most common cause of vomiting in a child at this age. The history is typical of GORD as vomits and discomfort are associated with feeds and after being laid down. In addition, the vomits are non-projectile and non-bilious, and observations are normal; therefore, the other options are less likely.

Cow's milk protein intolerance is incorrect. This is an important differential given the history of vomiting and crying (could be an indication of colic). However, there is no history of stool changes or rashes. Furthermore, this usually presents in the first 3 months of life. Therefore, this is unlikely.

Duodenal atresia is incorrect. This would typically present earlier in life, possibly a few hours after birth. It would present with projectile and bilious vomiting. Therefore, this is unlikely.

Gastroenteritis is incorrect. Gastroenteritis is commonly caused by a viral infection, typically resulting in a fever and tachycardia. This could be associated with stool changes, but this was not mentioned in the history. The normal observations make this option less likely than GORD.

Pyloric stenosis is incorrect. This is an important differential in a child of this age, given the non-bilious vomits; however, it is less common than GORD. The vomits would be projectile. Therefore, this is less likely.

Question:

Which one of the following statements regarding the reporting of medication related adverse events using the Yellow Card scheme is correct?

A.A persistent cough secondary to ramipril should be reported

B.A patient who dies of a myocardial infarction four years after starting a statin should be reported

C.Diarrhoea occuring after starting a black triangle medicine should be reported

D.There is no need to report a rash secondary to lymecycline in a 14-year-old girl

E.An allergic rash that develops in an elderly man secondary to co-amoxiclav should be reported

Answer:Diarrhoea occuring after starting a black triangle medicine should be reported

Explanation:

Question:

Each of the following drugs are known to induce cytochrome p450 enzyme, except:

A.Rifampicin

B.Isoniazid

C.Phenobarbitone

D.Griseofulvin

E.Carbamazepine

Answer:Isoniazid

Explanation:

Isoniazid inhibits the P450 system

Important for meLess important

Isoniazid is an inhibitor of the P450 system

Question:

A 65-year-old man with a history of ischaemic heart disease is admitted with chest pain. The 12-hour troponin T is negative. During admission his medications were altered to reduce the risk of cardiovascular disease and to treat previously undiagnosed type 2 diabetes mellitus. Shortly after discharge he presents to his GP complaining of diarrhoea. Which one of the following medications is most likely to be responsible?

A.Gliclazide

B.Clopidogrel

C.Rosiglitazone

D.Metformin

E.Atorvastatin

Answer:Metformin

Explanation:

Gastrointestinal side-effects such as diarrhoea and bloating are a common side effect with metformin

Important for meLess important

Gastrointestinal problems are a common side-effect of many medications but are frequently seen in patients taking metformin

If this patient had a raised troponin T then metformin may not be suitable as it is contraindicated following recent episodes of tissue hypoxia.

Question:

A 73-year-old woman presents to her general practitioner with a one-month history of generalised weakness. She reports that she now finds it difficult to stand when she sits down. On further questioning, she admits to noticing an erythematous rash on her chest, though she denies pruritus. Her past medical history is significant only for well-controlled hypertension.

On examination, her hands are very dry with linear cracks. There are violaceous papules on her knuckles bilaterally. There is also a striking purple rash around each eyelid.

What antibody is most specific for the likely diagnosis?

A.Anti-Jo-1 antibody

B.Anti-Ro antibody

C.Anti-Smith antibody

D.Antinuclear antibody

E.Rheumatoid factor

Answer:Anti-Jo-1 antibody

Explanation:

Dermatomyositis is associated with the anti-Jo-1 antibody

Important for meLess important

Anti-Jo-1 antibody is correct. The patient's constellation of signs and symptoms is consistent with dermatomyositis. While many autoantibodies are associated with dermatomyositis, anti-Jo-1 is the most specific for inflammatory myopathies. Her difficulty standing from sitting is consistent with proximal myopathy, a hallmark of dermatomyositis, while the raised nodules on her knuckles are in keeping with Gottron's papules. Her dry and cracked hands are consistent with 'mechanic's hands', another sign of dermatomyositis. Lastly, the purple rash around the patient's eyelids is consistent with a heliotrope rash, also a feature of dermatomyositis.

Anti-Ro antibody is incorrect. This is associated with Sjogren's syndrome and is not specific to dermatomyositis.

Anti-Smith antibody is incorrect. This is specific for systemic lupus erythematosus and is not associated with dermatomyositis.

Antinuclear antibody is incorrect. Although titres are commonly raised in dermatomyositis, this is not specific to dermatomyositis. Antinuclear antibody (ANA) is positive in many rheumatological conditions including but not limited to systemic lupus erythematosus, rheumatoid arthritis, and Sjogren's syndrome.

Rheumatoid factor is incorrect. This is not specific to dermatomyositis. Rheumatoid factor titres may be increased in rheumatological conditions including rheumatoid arthritis and Sjogren's syndrome.

Question:

A 43-year-old man presents to his family physician complaining of weakness in his legs. The weakness started about a month ago and he feels that it is getting worse. He decided to come to see the physician after having had two falls in the past week. His colleagues have also mentioned to him that he seems to be dragging his foot when walking. On further questioning, the physician finds out that the patient has also been having difficulties chewing and swallowing his food.

On examination, the physician notices significant leg muscle atrophy, reduce power as well as some fasciculations and increased reflexes. There is no sensory deficit. He has no significant past medical history and has never had any leg trauma before. The patient does not have diabetes and has not recently suffered from any viral infection. Nerve conduction studies show normal motor conduction and a magnetic resonance imaging show no white matter lesions.

Which of the following condition does this patient most likely suffer from?

A.Myasthenia gravis

B.Guillain-barre syndrome

C.Amyotrophic lateral sclerosis

D.Diabetic neuropathy

E.Multiple sclerosis

Answer:Amyotrophic lateral sclerosis

Explanation:

Motor neuron disease is associated with normal motor conduction on nerve conduction studies

Important for meLess important

This patient presented with the signs and symptoms suggestive of a motor neuron disease (MND), most likely amyotrophic lateral sclerosis. This diagnosis is strongly supported by the mix of both lower motor neuron and upper motor neuron signs. The fact that the man presented with the symptoms after 40 years and the lack of sensory symptoms also point towards a diagnosis of motor neuron disease (MND). Nerve conduction studies are normal in MND and this is important in the diagnosis.

(First Aid 2017, p499-500).

1: Myasthenia gravis is an autoimmune condition whereby the patient's immune system attacks the acetylcholine receptors at the neuromuscular junction. Symptoms include weakness, especially in the evening. Treatment is focused on increasing the concentration of acetylcholine in the synaptic cleft using acetylcholinesterase inhibitors.

2: In diabetes, uncontrolled hyperglycemia leads to microvascular angiopathy which in turn damages the nerves. Patients often experience reduced sensation in the feet and altered sensation.

4: Guillan-barre syndrome is an autoimmune condition. It has no known causes but often occurs after an episode of infection or immunization. Both conditions are associated with slowed motor conduction on nerve conduction studies.

5: Multiple sclerosis is a neurological condition whereby the white matter in the central nervous system is affected. Magnetic resonance imaging may show white matter lesions, although these may also be seen in small vessel disease in patients with poorly controlled high blood pressure.

Question:

Please look at the image below:

© Image used on license from DermNet NZ

The lesion has been getting bigger for the past few weeks. There is no history of trauma. What is the most likely diagnosis?

A.Basal cell carcinoma

B.Seborrhoeic keratosis

C.Bowen's disease

D.Tinea corporis

E.Nummular eczema

Answer:Bowen's disease

Explanation:

Question:

A 55-year-old man asks you to have a look at some 'red spots' on his torso. They have been present for about the past six months.

© Image used on license from DermNet NZ

What is the most likely diagnosis?

A.Kaposi sarcoma

B.Blue rubber bleb naevus syndrome

C.Thrombocytopaenia

D.Malignant melanoma

E.Cherry haemangioma

Answer:Cherry haemangioma

Explanation:

Question:

A 61-year-old man presents with a two-week history of a sharp, stabbing pain over his right cheekbone. He describes the pain as 'very severe' and 'coming in spasms'. It typical lasts for around one minute before subsiding. The pain can be triggered by shaving and eating. Examination of his eyes, cranial nerves and mouth is unremarkable. What is the most likely diagnosis?

A.Trigeminal neuralgia

B.Temporomandibular joint dysfunction

C.Temporal arteritis

D.Cluster headache

E.Herpes zoster ophthalmicus

Answer:Trigeminal neuralgia

Explanation:

The character of the pain in this patient is very typical of trigeminal neuralgia.

Question:

You review a 68-year-old man who has chronic obstructive pulmonary disease (COPD). Each year he typically has around 7-8 courses of oral prednisolone to treat infective exacerbations of his COPD. Which one of the following adverse effects is linked to long-term steroid use?

A.Osteomalacia

B.Enophthalmos

C.Leucopaenia

D.Avascular necrosis

E.Constipation

Answer:Avascular necrosis

Explanation:

Long-term corticosteroid use is linked to osteopaenia and osteoporosis, rather than osteomalacia.

Question:

Shortly after complaining of chest pain, an 80-year-old inpatient collapses on the medical ward. They have no pulse. The team start cardiopulmonary resuscitation (CPR) and put out a crash call.

Once the defibrillator has been attached, the team stops for a rhythm check. The trace shows organised electrical activity but there is still no pulse and there are no signs of life.

As well as continuing CPR at a rate of 30:2, what else should the team do at this point?

A.Give intramuscular adrenaline

B.Give intravenous adrenaline

C.Give intravenous amiodarone

D.Give one shock with the defibrillator

E.Continue 2 minutes of CPR with neither a shock nor drugs

Answer:Give intravenous adrenaline

Explanation:

ALS - give adrenaline in non-shockable rhythm as soon as possible

Important for meLess important

This situation is pulseless electrical activity - the patient's rhythm check shows organised electrical activity but there is no pulse. Along with asystole, this is a non-shockable rhythm and the team must therefore follow the non-shockable pathway of the advanced life support (ALS) algorithm. This includes continuing CPR for another two minutes prior to rhythm check and giving 1mg intravenous (IV) as soon as intravascular access is achieved. This is confirmed in the most up-to-date Resuscitation Council Guidelines (2021). The adrenaline dose is then repeated every 3-5 minutes. In the shockable algorithm, adrenaline is not given until after the third shock. In this case, the correct answer is therefore to give IV adrenaline.

Giving intramuscular adrenaline is incorrect. This is the administration method used in anaphylaxis, with 500mcg being the adult dose. In cardiac arrest, a higher dose of 1mg is used and it is given intravenously to aid its circulation around the body.

Giving IV amiodarone is incorrect. This is an anti-arrhythmic that is given after the third shock in the shockable algorithm. It is not given for non-shockable rhythms such as pulseless electrical activity.

Giving one shock is incorrect as this is a non-shockable rhythm. A shock is advised if the rhythm check shows ventricular fibrillation or pulseless ventricular tachycardia. This is not the case in this patient.

Although not shocking the patient is correct, it is incorrect to wait until the next rhythm check to give any drugs. Adrenaline should be given as soon as possible in the non-shockable pathway of ALS. This is detailed in the most recent Resuscitation Council Guidelines (2021).

Question:

A 28-year-old nulliparous woman who is at 39 weeks gestation undergoes spontaneous labour. You are called to assist in the vaginal delivery. As the head is delivered, you notice it retracts against the perineum. The anterior shoulder is unable to be delivered by downward traction. Which of the following statements is true regarding shoulder dystocia?

A.Fundal pressure should always be used

B.Immediately after shoulder dystocia is recognised, additional help should be called

C.After shoulder dystocia is recognised, an episiotomy is usually necessary

D.Induction of labour at term can increase the incidence of shoulder dystocia in women with gestational diabetes

E.Internal correction should be attempted before McRoberts manoeuvre is performed

Answer:Immediately after shoulder dystocia is recognised, additional help should be called

Explanation:

According to guidelines on shoulder dystocia management:

Immediately after shoulder dystocia is recognised, additional help should be called.

Fundal pressure should not be used.

An episiotomy is not always necessary.

Induction of labour at term can actually reduce the incidence of shoulder dystocia in women with gestational diabetes.

McRoberts manoeuvre is the first line intervention as it is known to be simple, rapid and effective in most cases

\*Source [RCOG Green-top guideline no. 42, Mar 2012. Shoulder Dystocia]

Question:

A 34-year-old pregnant female at 12 weeks gestation presents with a two-week history of severe nausea and vomiting. On examination, the pulse is 110 beats/min and blood pressure 110/80 mmHg. It is also noted that the patient is experiencing diplopia and ataxia. Urinalysis demonstrates an increased specific gravity and 3+ ketones. A diagnosis of hyperemesis gravidarum is made. The patient responds suitably to fluid resuscitation with 0.9% saline. What other treatment should this patient receive?

A.Nasogastric tube feeding

B.Vitamin B12

C.Insulin

D.Intravenous vitamins B and C (Pabrinex)

E.Low molecular weight heparin

Answer:Intravenous vitamins B and C (Pabrinex)

Explanation:

Hyperemesis gravidarum is a serious complication of pregnancy. It can result in life-threatening dehydration and metabolic derangements. In addition, if severe or prolonged it can also result in vitamin and mineral deficiencies. In this case, the patient has presented with diplopia and ataxia suggestive of Wernicke's encephalopathy. Therefore, supplementation of thiamine (Vitamin B1) with a vitamin B and C complex (e.g. Pabrinex) is indicated.

Question:

An 80-year-old woman develops vomiting and severe diarrhoea on her 5th day of admission following a hip fracture. On examination, she has dry mucous membranes and reduced skin turgor. She weighs 57kg. Her renal function is checked and is as follows:

Creatinine 114 µmol/L

Urea 15.1 mmol/L

Her creatinine on admission was 59 µmol/L. Her past medical history includes hypertension, hypercholesterolaemia, and ischaemic heart disease for which she takes aspirin.

Which one of the following medications should be held at this time?

A.Aspirin

B.Atorvastatin

C.Levothyroxine

D.Paracetamol

E.Valsartan

Answer:Valsartan

Explanation:

Angiotensin II receptor antagonists should be stopped in AKI as may worsen renal function

Important for meLess important

This patient has an AKI, likely a pre-renal AKI caused by dehydration-induced hypovolaemia. Angiotensin II receptor antagonists should be stopped in AKI as they decrease renal perfusion and can precipitate a further drop in renal function.

Aspirin, while technically an NSAID, is generally considered safe to continue in AKI at cardiac dose of 75mg.

Atorvastatin may need to be dose adjusted in renal impairment, however, it does not need to be stopped in this situation.

Lercanidipine is a calcium channel blocker. It does not have the same effect on renal vasculature as angiotensin II receptor antagonists, however, the BNF recommends avoiding if eGFR <30ml/min/1.73m2.

Paracetamol is considered to be safe to continue in AKI, however, may need dose reduction if there is severe renal impairment.

Question:

A 28-year-old woman is seen in the clinic with a 4-month history of headaches. Her usual headaches have prodromal flashing lights and are relieved by lying in a dark room, but this one has been persistent and is worse when bending forward. She has no other history and uses the intrauterine system for contraception.

She is afebrile, her pulse is 85 bpm, her blood pressure is 135/77 mmHg, and her BMI is 32 kg/m². There is no weakness or impaired sensation and visual fields are intact but acuity is 6/9 in both eyes. Bilateral papilloedema is present. An MRI of the brain is normal.

What is the most appropriate step?

A.Prescribe acetazolamide and advise weight loss

B.Prescribe amitriptyline and ibuprofen and advise weight loss

C.Prescribe propranolol and advise weight loss

D.Prescribe topiramate and advise weight loss

E.Prescribe sumatriptan and ibuprofen and advise weight loss

Answer:Prescribe acetazolamide and advise weight loss

Explanation:

Postural headache but normal imaging -> idiopathic intracranial hypertension

Important for meLess important

A new headache that is different to a patient's usual ones always requires further explanation. Her typical headaches are suggestive of migraine with aura, due to them requiring her to stop her activities of daily living, being relieved by lying in a dark room, and the presence of aura (the flashes in her vision). This headache has associated visual blurring (as seen on assessment of her visual acuity) and is worse when changing posture (e.g. bending forward), which alongside papilloedema, should raise suspicion of increased intracranial pressure (ICP). Given that this patient is young, female, has no focal neurological defects or obvious pathology on an MRI, and her BMI is classed as obese, the most likely diagnosis is idiopathic intracranial hypertension (IIH).

Prescribe acetazolamide and advise weight loss is correct as the first-line step in managing IIH is the use of diuretics such as acetazolamide and weight loss. The use of diuretics is associated with an improvement in papilloedema and cerebrospinal fluid pressure.

Prescribe amitriptyline and ibuprofen and advise weight loss is incorrect. Amitriptyline may be considered for symptomatic relief in IIH but is considered if her symptoms persist after trying first-line measures. Since she has not yet had any treatment, jumping to this step may not be necessary due to the risk of side effects associated with amitriptyline including dry mouth, sedation, and urinary retention.

Prescribe propranolol and advise weight loss is incorrect. This is prescribed to people of childbearing potential with migraines. Although this patient has a history of migraine with aura, the current problem is her IIH, in which propranolol plays no role in prophylaxis. Provided there are no contraindications, propranolol should be considered for the prophylaxis of her migraine, however, the IIH should be addressed first as it can lead to irreversible vision loss.

Prescribe topiramate and advise weight loss is incorrect. As mentioned above, this is a prophylactic measure in the management of migraine. It should be avoided in people of childbearing potential unless contraceptive measures are in place. This patient's IIH should be managed first as it can lead to irreversible vision loss.

Prescribe sumatriptan and ibuprofen and advise weight loss is incorrect as this is used in the management of acute migraine. The headache this patient is currently experiencing is a result of her IIH, not migraine therefore this step is inappropriate.

Question:

A 56-year-old man presents to the urology clinic. He has suffered from recurrent episodes of renal colic. CT scans have shown multiple stones and 24-hour urine collection reveals high urinary calcium.

What is the single best medication that might reduce his stone formation?

A.Allopurinol

B.Cholestyramine

C.Oral bicarbonate

D.Pyridoxine

E.Thiazide diuretic

Answer:Thiazide diuretic

Explanation:

In a patient with hypercalciuria and renal stones, calcium excretion and stone formation can be decreased by the use of thiazide diuretics

Important for meLess important

Allopurinol works as a xanthine oxidase inhibitor which works to reduce uric acid production. It, therefore, decreases uric acid stones rather than calcium stones.

Cholestyramine reduces urinary oxalate secretion and can decrease oxalate stones, not calcium stones.

Oral bicarbonate can increase the alkalization of the urine and decrease uric acid stones rather than calcium stones.

Pyridoxine may reduce oxalate stones rather than calcium stones by reducing urinary oxalate secretion.

Thiazides diuretics may help in this scenario. Thiazides can increase distal tubular calcium resorption and therefore decrease calcium in the urine and stone formation.

Question:

A 65-year-old post-menopausal lady presents with bloating, unintentional weight loss, dyspareunia, and a raised CA-125. Given the likely diagnosis, which of the following terms best describes how this cancer spreads initially?

A.Local spread within the pelvic region

B.Spread to abdominal organs

C.Haematological spread

D.Lymphatic spread

E.Seeding

Answer:Local spread within the pelvic region

Explanation:

Ovarian cancer initially spreads by local invasion

Important for meLess important

This patient most likely has ovarian cancer which presents with IBS-like symptoms, possible irregular vaginal bleeding and a raised CA125.

The stages of ovarian cancer are as follows:

Confined to the ovaries (Stage 1)

Local spread within the pelvis (Stage 2)

Spread beyond the pelvis to the abdomen (Stage 3)

Although haematological routes and lymphatic routes are common, they would present later than local spread within the pelvis. The most common site for lymphatic spread is the para-aortic lymph nodes. The most common site for haematological spread is the liver.

Seeding is caused by surgical intervention is not a natural processing of spreading.

Question:

A 10-year-old boy presents with symptoms of right knee pain. The pain has been present on most occasions for the past three months and the pain typically lasts for several hours at a time. On examination; he walks with an antalgic gait and has apparent right leg shortening. What is the most likely diagnosis?

A.Perthes Disease

B.Osteosarcoma of the femur

C.Osteoarthritis of the hip

D.Transient synovitis of the hip

E.Torn medial meniscus

Answer:Perthes Disease

Explanation:

There are many causes of the irritable hip in the 10-14 year age group. Many of these may cause both hip pain or knee pain. Transient synovitis of the hip the commonest disorder but does not typically last for 3 months. An osteosarcoma would not usually present with apparent limb shortening unless pathological fracture had occurred. A slipped upper femoral epiphysis can cause a similar presentation although it typically presents later and with different patient characteristics.

Question:

A 32-year-old woman presents to the GP with excruciating retro-orbital pain and a red, watery eye. She describes the pain as sharp and lancinating and says it has been occurring for the past four days, intermittently. Her visual acuity is normal and pupils are equal and reactive to light. She had a similar episode 6 months ago.

Considering the likely diagnosis, which of the following drugs can be used to prevent similar future episodes?

A.Amlodipine

B.Verapamil

C.Propranolol

D.Sumatriptan

E.Ondansetron

Answer:Verapamil

Explanation:

Verapamil is used for long-term prophylaxis of cluster headaches

Important for meLess important

Cluster headaches are excruciating attacks of pain in one side of the head, often felt around the eye. It tends to affect the same side for each attack. Associated symptoms of ipsilateral lacrimation and rhinorrhoea are common.

Verapamil is a non-dihydropyridine calcium channel blocker used in the prophylaxis of cluster headache. Dihydropyridine calcium channel blockers do not serve this purpose. The mechanism by which verapamil prevents cluster headaches is not fully understood, but some believe it may be due to its vasodilatory effects on cerebral arteries.

Amlodipine is a dihydropyridine calcium channel blocker. It is used to treat hypertension.

Propranolol is a beta-blocker. Propranolol is used for many conditions, often to combat sympathetic nervous system overactivity associated with conditions such as generalised anxiety disorder and hyperthyroidism. It can also be used to try and prevent migraines.

Triptans are 5-hydroxytryptamine receptor agonists. They are used in conjunction with high-flow oxygen to abort acute cluster headaches. There is no evidence that they prevent a recurrence.

Ondansetron is a 5-hydroxytryptamine antagonist which is used as an anti-emetic.

Question:

A 4-year-old boy presents to his GP as his mother feels that his hearing is deteriorating. Although he can hear loud noises, he particularly struggles to hear other children at nursery. He has a history of eczema, unexplained microscopic haematuria and has worn glasses for the last year. On examination he appears well. Further investigations reveal sensorineural hearing loss.

What is the most likely underlying cause?

A.Goodpasture's syndrome

B.Alport syndrome

C.Polycystic kidney disease

D.Buildup of earwax

E.Glue ear

Answer:Alport syndrome

Explanation:

Think of Alport syndrome when renal failure, sensorineural hearing loss and ocular abnormalities develop in a child

Important for meLess important

Think of Alport syndrome when renal failure, sensorineural hearing loss and ocular abnormalities develop in a child, as this combination is quite distinctive. Renal failure can first present as haematuria in children. There are a variety of ocular abnormalities, and lens prescription has to be strengthened often.

Earwax and glue ear cause conductive, not sensorineural, hearing loss. None of the alternative options cause cause hearing loss or ocular abnormalities. The eczema is not relevant to the question.

Question:

A 72-year-old nulliparous female presents with post menopausal bleeding. She reports that her last cervical screening was 14 years ago. On examination she is found to be obese and hypertensive. What is the most important diagnosis to rule out?

A.Vaginal squamous cell carcinoma

B.Cervical squamous cell carcinoma

C.Endometrial adenocarcinoma

D.Atrophic vaginitis

E.Leiomyosarcoma

Answer:Endometrial adenocarcinoma

Explanation:

In a female with postmenopausal bleeding (PMB), the diagnosis is endometrial cancer until proven otherwise. Although all the options can result in PMB, the question states the most important one to rule out, which in this case would be endometrial adenocarcinoma due to its strong association with PMB and the importance of an early diagnosis prognostically.

In addition, the patient in this question has two risk factors for endometrial adenocarcinoma - hypertension and obesity. Other risk factors include diabetes mellitus, polycystic ovarian syndrome, tamoxifen use, late menopause and high levels of oestrogen.

Question:

A 23-year-old woman is recovering on the haematology ward following a stem cell transplant for acute myeloid leukaemia. On reviewing her blood results, the FY1 doctor notes that her haemoglobin is low, at 64g/litre. The doctor orders her a unit of irradiated packed red cells.

What is being prevented by ordering irradiated blood products in this patient?

A.Acute haemolytic transfusion reaction

B.Cytomegalovirus (CMV) transmission

C.Graft versus host disease

D.Hepatitis B transmission

E.Transfusion-associated lung injury (TRALI)

Answer:Graft versus host disease

Explanation:

Irradiated blood products are used to avoid transfusion-associated graft versus host disease

Important for meLess important

Irradiated blood products are required in patients following bone marrow and stem cell transplants to prevent graft versus host disease. The process depletes the blood products of T-lymphocytes.

Acute haemolytic transfusion reaction is prevented by ensuring the patient gets the correct ABO typed blood products.

CMV negative blood will prevent CMV transmission through blood products. However, this is now rarely needed, as CMV is transmitted in leucocytes and most blood products are leucocyte depleted.

Methods to prevent hepatitis B transmission through blood products include careful screening of donors.

TRALI occurs due to anti-leucocyte antibodies from the donor's blood. In the event of a TRALI, the causative donor must be removed from the donor panel.

Question:

A 58-year-old man has recently been discharged from hospital with a new diagnosis of heart failure with reduced ejection fraction. His symptoms of breathlessness and ankle swelling have now resolved and he has been commenced on ramipril, bisoprolol and furosemide. He also has type 2 diabetes, for which he is already taking metformin and gliclazide. His renal function is normal and his serum potassium is 4.9 mmol/L.

Which of the following interventions should form part of the ongoing care of this patient?

A.Avoid sexual intercourse for 4 weeks

B.Substitute sodium-based dietary salt with potassium-based alternative

C.Advise DVLA notification (group 1 vehicle)

D.Annual influenza vaccination

E.5-yearly pneumococcal vaccination

Answer:Annual influenza vaccination

Explanation:

As part of the broad lifestyle approach to heart failure, annual influenza vaccine should be offered

Important for meLess important

Patients with confirmed heart failure with reduced ejection fraction should be offered an annual influenza vaccine and a once-only pneumococcal vaccination.

Generally, only people with asplenia, splenic dysfunction or chronic kidney disease require pneumococcal re-vaccination every 5 years.

Avoiding sexual intercourse for 4 weeks is the usual recommendation after myocardial infarction, rather than heart failure.

Patients should certainly avoid excessive salt intake and should not exceed 6 g of salt each day, but replacing with potassium-containing salt substitutes is not recommended due to the risk of hyperkalaemia with concurrent use of ACE inhibitors.

Driving may continue for group 1 entitlement (cars, motorcycles) provided there are no symptoms that may distract the driver's attention. The DVLA need not be notified.

Question:

A 70-year-old male is brought to the emergency department complaining of a 40-minute history of central crushing chest pain.

Observations reveal tachycardia, with a normal respiratory rate and oxygen saturations. An electrocardiogram (ECG) reveals ischaemic changes without ST elevation, and a troponin blood sample is reported as raised, leading to the diagnosis of a non-ST-elevated myocardial infarction (NSTEMI).

He is administered morphine and nitrates for his pain, alongside anti-platelet and anticoagulant therapy. He is also started on a beta-blocker. His Global Registry of Acute Coronary Events (GRACE) score is calculated as 6%.

Based on the information provided, what additional treatment is indicated for this patient?

A.Furosemide

B.Oxygen therapy

C.Percutaneous coronary intervention (PCI)

D.Thrombolysis

E.Verapamil

Answer:Percutaneous coronary intervention (PCI)

Explanation:

NSTEMI management is determined by a risk assessment score such as GRACE

Important for meLess important

Following the diagnosis of an NSTEMI, a patient's risk of a repeat event should be calculated, most commonly using the Global Registry of Acute Coronary Events (GRACE) score. A risk higher than 3% (as is the case with this patient) indicates that the patient should undergo PCI within 72 hours of hospital admission. They should also receive unfractionated heparin and a glycoprotein IIB/IIIA receptor antagonists prior to this PCI.

There is no clinical indication for a diuretic such as furosemide in this scenario. It is not routinely involved in the acute treatment of an NSTEMI, unless heart failure with fluid overload occurs as a complication.

Oxygen therapy is only indicated for patients experiencing a myocardial infarction of any kind if oxygen saturations fall below normal limits, which is not the case in this scenario.

Thrombolysis is not the preferred management option in this case. It can be used in patients with an ST-elevated myocardial infarction (STEMI) in place of PCI, if PCI is contraindicated or unavailable within 2 hours.

A calcium channel blocker such as verapamil would not be indicated in the acute management of an NSTEMI. Verapamil is also a rate-limiting calcium channel blocker and so is contraindicated in this patient who has just been prescribed a beta-blocker.

Question:

A 72-year-old male present to his general practitioner with increasing tiredness, a sense of dizziness and shortness of breath. He denies any other symptoms. He has a complete past medical history comprising of ulcerative colitis, diabetes, atrial fibrillation and depression. The doctor orders some blood tests that show the following:

Hb 110 g/L Male: (135-180) Female: (115 - 160)

Platelets 390 \* 109/L (150 - 400)

WBC 6.6 \* 109/L (4.0 - 11.0)

Reticulocytes 2.5 % (0.5 - 1.5)

A peripheral smear shows multiple Heinz bodies.

Which one of the following drugs is more likely to have caused the symptoms?

A.Citalopram

B.Fluoxetine

C.Heparin

D.Metformin

E.Sulphasalazine

Answer:Sulphasalazine

Explanation:

Sulphasalazine may cause Heinz body anaemia

Important for meLess important

The correct answer is sulphasalazine. This drug, used in the treatment of ulcerative colitis and rheumatoid arthritis, can cause haemolytic anaemia with Heinz bodies. This patient presents with the signs and symptoms of anaemia, such as tiredness, dizziness and shortness of breath. Additionally, his blood tests show low haemoglobin, increased reticulocytes and the peripheral smear shows multiple Heinz bodies, confirming the diagnosis.

Citalopram and fluoxetine are two selective serotonin reuptake inhibitors. They do not cause Heinz body anaemia, but they can cause thrombocytopenia.

Heparin is an anticoagulant drug. It can cause drug-induced thrombocytopenia, but this patient's platelets are normal, making the diagnosis unlikely.

Metformin is a first-line drug used in diabetes type two to increases insulin sensitivity. It does not cause Heinz body anaemia.

Question:

A 67-year-old woman is reviewed a week after being diagnosed with having a deep vein thrombosis of her left leg. After receiving low-molecular weight heparin for 5 days she has now been started on warfarin. She has a history of depression, osteoporosis, breast cancer and type 2 diabetes.

Which one of her current medications is most likely to have increased her risk of developing a deep vein thrombosis?

A.Trazadone

B.Tamoxifen

C.Sitagliptin

D.Denosumab

E.Rosuvastatin

Answer:Tamoxifen

Explanation:

Tamoxifen increases the risk of VTE + endometrial cancer

Important for meLess important

One of the most important adverse effects of tamoxifen is the increased risk of VTE. Women should be counselled about this prior to starting treatment.

Question:

A 62-year-old man is brought into the emergency department at midnight having been found walking the streets by the police, in a disorientated state. He appears confused and smells strongly of alcohol. He is unable to give a coherent history.

On examination, the patient has an ataxic gait. On inspection of his eyes, there is an involuntary rhythmic motion of the eyes and the sclera appear yellow.

Given the likely diagnosis, what is the most appropriate initial step in management?

A.Benzodiazepines

B.Fluids and supportive treatment

C.Head CT

D.IV B/C vitamins

E.Lactulose

Answer:IV B/C vitamins

Explanation:

Confusion, ataxia, nystagmus/ophthalmoplegia→ give Pabrinex (IV B/C vitamins)

Important for meLess important

IV B/C vitamins is the correct answer. The history describes the triad of Wernicke's encephalopathy (confusion, ataxia, nystagmus). In this case, most likely caused by excessive chronic alcohol consumption leading to thiamine deficiency. Pabrinex replaces the thiamine and prevents the condition from progressing to Korsakoff's psychosis.

Benzodiazepines are used in the treatment of alcohol withdrawal resulting in delirium tremens and so is incorrect. This patient does not have features of delirium tremens as there is no agitation, hallucinations, or seizures, and because he smells strongly of alcohol, it is less likely he is in acute alcohol withdrawal.

Fluid and supportive treatment are incorrect. Although these are given, the mainstay of initial treatment is IV Pabrinex.

Head CT is incorrect. There is nothing in the history suggestive of trauma causing this man's confusion, therefore a CT head would be inappropriate. Wernicke's encephalopathy has no findings on imaging so this would not be helpful in aiding the diagnosis. Investigations would involve bloods to show reduced thiamine levels explaining the symptoms and signs.

Lactulose is incorrect. This is a treatment for hepatic encephalopathy which presents with confusion, irritability and asterixis (flapping hand motion) on a background of alcoholic liver disease. The sclera appearing yellow indicates that this patient is jaundiced, so likely has chronic liver disease which could result in hepatic encephalopathy. However, nystagmus and ataxia make Wernicke's encephalopathy the more likely diagnosis.

Question:

A 26-year-old female presents to her GP complaining of post-coital bleeding. This has happened on three occasions, but there is no pain, no discharge and no inter-menstrual bleeding. She is taking the combined contraceptive pill and only has sex with a regular partner. She has never been pregnant. She is worried as her grandmother has had endometrial cancer. On examination, there is a small area of redness around the cervical os. Which option is most likely to be responsible for her presentation?

A.Endometriosis

B.Chlamydia infection

C.Endometrial cancer

D.Nulliparity

E.Combined contraceptive pill use

Answer:Combined contraceptive pill use

Explanation:

Cervical ectropion is more common in those on the COCP due to higher oestrogen levels

Important for meLess important

The history, together with the examination findings are consistent with a cervical ectropion. Ectropions are more common when taking the pill, in pregnancy and during puberty. Endometrial cancer is unlikely in somebody so young, and the presence of a cervical ectropion on examination makes this simple diagnosis most likely. Chlamydia infection can cause cervicitis but her sexual history points away from this diagnosis, and the pill is still the most likely causative factor. STI screens should be performed annually, however.

Question:

A 65-year-old woman attended the GP 4 days ago feeling lethargic and tired for the past 3 months. Her only past medical history is rheumatoid arthritis for which she takes paracetamol as required for pain. She is a non-smoker, does not drink alcohol, and retired 10 years ago from her job working in a factory producing ceramic paints. Bloods show:

Hb 85 g/L (115 - 160)

Platelets 280 \* 109/L (150 - 400)

WBC 8.2 \* 109/L (4.0 - 11.0)

MCV 86 fL (80 - 100)

Prothrombin time (PT) 12 secs (10-14 secs)

Activated partial thromboplastin time (APTT) 28 secs (25-35 secs)

Serum iron 50 mcg/dL (60 - 170)

Ferritin 420 ng/mL (20 - 230)

Folate 4.2 ng/mL (>4.0)

Vitamin B12 450 pg/mL (180 - 1000)

What is the most likely diagnosis for this patient?

A.Anaemia of chronic disease

B.Folate deficiency anaemia

C.Iron deficiency anaemia

D.Lead toxicity anaemia

E.Sideroblastic anaemia

Answer:Anaemia of chronic disease

Explanation:

Ferritin is low in iron deficiency anaemia but high or normal in anaemia of chronic disease

Important for meLess important

This patient is presenting with symptoms of anaemia (tiredness and lethargy), patients will often report dizziness, reduced exercise tolerance, palpitations, and looking pale. This patient has anaemia of chronic disease. In order to differentiate between the different types of anaemia, it is worth considering the below table:

Iron deficiency anaemia Anaemia of chronic disease

Serum iron Decreased Decreased

Total iron-binding capacity Increased Decreased/normal

Serum ferritin Decreased Normal/increased

Folate deficiency anaemia causes macrocytic anaemia and is characterised by low vitamin B12 or B9 (folate). It is associated with a diet low in fresh fruits, fortified cereals and products, and fresh vegetables. Patients experience lethargy, pins and needles, mouth ulcers, a sore/red tongue, and may have impaired memory.

Iron deficiency anaemia would be characterised by low ferritin (see the table above for differentiation between iron deficiency and anaemia of chronic disease).

Lead toxicity can lead to anaemia, however, this would cause microcytic, hypochromic anaemia with low ferritin levels. While this patient has a risk factor for lead toxicity anaemia (she has worked in a factory making ceramic paints which would previously have had high levels of lead), it is not the most likely diagnosis given the blood results and would have been more likely to present sooner.

Sideroblastic anaemia occurs when the body is unable to incorporate iron into haemoglobin (despite adequate iron available). It can occur genetically or as part of myelodysplastic syndrome. Bloods will show high serum iron, decreased total iron-binding capacity, increased ferritin levels, and high transferrin saturation. For specific testing, Prussian blue staining of red blood cells in bone marrow will show ringed sideroblasts.

Question:

A 25-year-old Afro-Caribbean woman presents to the GP presents with a 3-month history of fatigue, fever and a rash. On examination, she has a rash sparing her nasolabial folds and cold peripheries.

What is the most specific test for this woman's likely diagnosis?

A.Anti-citrullinated protein antibody

B.Anti-double stranded DNA

C.Anti-nuclear antibody

D.Erythrocyte sedimentation rate

E.Rheumatoid factor

Answer:Anti-double stranded DNA

Explanation:

Anti-dsDNA is a highly specific test for SLE

Important for meLess important

This is a typical presentation of systemic lupus erythematosus (SLE) occurring in a female woman of Afro-Caribbean origin with fatigue, fever and a malar (butterfly) rash that spares the nasolabial folds. The cold peripheries also suggest Raynaud's phenomenon, increasing the likelihood of a diagnosis of SLE. Anti-double stranded DNA is a highly specific test for SLE.

Anti-citrullinated protein antibody is a highly specific test for rheumatoid arthritis. Rheumatoid arthritis may present with fatigue and a low-grade fever but you would expect swelling and pain in the small joints of the hand and feet. It would not be associated with a rash sparing the nasolabial folds and cold peripheries.

Anti-nuclear antibody is a highly sensitive test for SLE but has low specificity. This means having a negative test makes a diagnosis of SLE very unlikely. However, a positive anti-nuclear antibody is also associated with a number of other conditions and could not be used to confirm a diagnosis of SLE in this patient.

Erythrocyte sedimentation rate (ESR) is a non-specific marker of inflammation. It can be raised in a number of different inflammatory conditions and therefore could not be used to diagnose SLE in this patient.

20% of patients with SLE are rheumatoid factor positive. Rheumatoid factor is also positive in rheumatoid arthritis and therefore, this could not be used to confirm a diagnosis of SLE.

Question:

A 35-year-old man comes to the emergency department after sustaining a fall at home. He had tripped over a rug and landed on his left knee, stating that there was an audible crack followed by intense pain. He wasn't able to weight bear due to the pain and after a few minutes the knee began to swell and darken. He didn't sustain any other injuries.

On examination the patient was alert and oriented. His left knee was swollen with significant haemarthrosis. Range of movement was limited due to pain but he was able to perform a straight leg raise successfully. Plain radiographs showed a non-displaced fracture of the patella with joint effusion.

What is the most appropriate management with regards to this patient's knee injury?

A.Arthroscopy with surgical reconstruction

B.Conservative management with knee immobilisation

C.Reassure and discharge with analgesia and advice

D.Surgical management - open reduction, internal fixation (ORIF)

E.Surgical management - partial patellectomy

Answer:Conservative management with knee immobilisation

Explanation:

Undisplaced patella fractures with an intact extensor mechanism can be managed non-operatively

Important for meLess important

The patient has suffered a non-displaced patella fracture with no damage to the extensor mechanism of the knee. This can be managed conservatively with immobilisation of the joint in extension.

Arthroscopy is useful for recurrent patella dislocations and meniscal/ligamentous damage but there is no need for surgical reconstruction.

While there is need to reassure and provide analgesia, this should be done after immobilisation as the injury needs time to heal.

ORIF is indicated when there is failure of the extensor mechanism, open fractures or fracture displacement.

Partial patellectomy is reserved for patients with a large comminuted patella fracture where ORIF is not possible. This is because you want to preserve the patella as much as possible.

Question:

You are discussing an elevated PSA result with one of your patients, a 62-year-old man with a PSA level of 10.2 ng/ml.

What next step is the urologist most likely to recommend?

A.Prostatectomy

B.Cystoscopy with prostate biopsy

C.Staging CT scan

D.Multiparametric MRI

E.TRUS-guided biopsy

Answer:Multiparametric MRI

Explanation:

Multiparametric MRI has replaced TRUS biopsy as the first-line investigation in suspected prostate cancer

Important for meLess important

The 2019 NICE guidelines made changes to how suspected prostate cancer is investigated in secondary care. Previously a TRUS-guided biopsy would be used first-line to clarify the diagnosis, as around two-thirds of such patients will not have prostate cancer.

NICE state the following:

Offer multiparametric MRI as the first-line investigation for people with suspected clinically localised prostate cancer. Report the results using a 5‑point Likert scale.

Question:

You review a 24-year-old woman with a history of asthma in the Emergency Department. She has been admitted with acute shortness of breath associated with tongue-tingling and an urticarial rash after eating a meal containing shellfish. Her symptoms settle with intramuscular adrenaline and nebulised salbutamol.

What is the most useful test to establish whether this episode was due to anaphylaxis?

A.Serum tryptase

B.Serum IgE

C.Plasma histamine

D.Eosinophil count

E.C-reactive protein

Answer:Serum tryptase

Explanation:

Anaphylaxis - serum tryptase levels rise following an acute episode

Important for meLess important

Serum tryptase levels may remain elevated for up to 12 hours following an acute episode of anaphylaxis.

Question:

An 82-year-old man is admitted with a three day history of increasing breathlessness, His past medical history includes ischaemic heart disease and rheumatoid arthritis. His current medications include aspirin, atorvastatin, bisoprolol, ramipril and methotrexate. On examination his heart rate is 80/min, blood pressure 111/80 mmHg, respiratory rate 24/min and oxygen saturations 89% on room air. There are reduced breath sounds on the right side of his chest.

A chest x-ray is ordered:

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What is the most likely diagnosis?

A.Mesothelioma

B.Methotrexate-induced pneumonitis

C.Multilobar pneumonia

D.Massive pleural effusion

E.Lung collapse

Answer:Lung collapse

Explanation:

The key to making the diagnosis, as with all white-outs, is to look at the position of the trachea. In this x-ray it is pulled towards the opacity making the diagnosis of a lung collapse likely.

Question:

Mrs Steinberg has advanced stage dementia. She has just been admitted to hospital with a stroke. The consultant wants a do not resuscitate (DNR) order put in place. Later that day Mrs Steinberg's daughter visits and states she does not want the DNR order in place. She has lasting power of attorney and wants everything possible to be done to keep her mother alive. What is the most likely action to resolve this situation?

A.Tell her your consultant's decision is final

B.Ask your consultant to have a meeting with the patient's family to discuss the DNR order

C.Remove the DNR order without telling your consultant

D.Ask palliative care to assess the patient

E.Ask Mrs Steinberg's other relatives what they think

Answer:Ask your consultant to have a meeting with the patient's family to discuss the DNR order

Explanation:

The daughter of this patient has lasting power of attorney, which means she can make healthcare decisions for her mother. However, according to the GMC guidelines:

'If a legal proxy or other person involved in the decision making asks for a treatment to be provided which the doctor considers would not be clinically appropriate and of overall benefit to the patient, the doctor should explain the basis for this view and explore the reasons for the request. If after discussion the doctor still considers that the treatment would not be clinically appropriate and of overall benefit, they are not obliged to provide it.'

In this question a DNR order is appropriate since quality of life after a resuscitation is likely to be poor given the pre-morbid state of advanced dementia. Therefore although the daughter has lasting power of attorney, the doctor can refuse to provide resuscitation is they don't think it is clinically appropriate. The best way to resolve this situation is to have a discussion with the daughter. It's likely she's still in shock or has not had an explanation as to why the DNR order was put in place.

Reference: http:www.gmc-uk.org/guidance/ethicalguidance/endoflifeadultslackingcapacitytodecide.asp

Question:

A 36-year-old male was admitted urgently to hospital 45-minutes after taking 50 regular-strength (75mg) aspirin tablets. He has a background of previous self-harm attempts with several admissions due to intentional overdose. His past medical history consisted of anxiety and depression.

On admission, he had increased respiratory of 25 breaths per minute, blood pressure of 111/77 mmHg and heart rate of 110 beats per minute. He was sweating profusely with a temperature of 38.1ºC.

What is the most appropriate initial management?

A.Activated charcoal

B.Haemodialysis

C.Intravenous bicarbonate

D.Intravenous fluids

E.Intravenous paracetamol

Answer:Activated charcoal

Explanation:

Activated charcoal can be used within an hour of an aspirin overdose

Important for meLess important

Salicylate poisoning can result in severe morbidity and mortality. Initial treatment of overdose involves resuscitation which would be to maintain his adequate airway and adequate circulation.

Activated charcoal administration helps to achieve gastric decontamination by adsorbing the salicylate in the gastrointestinal tract. Initial treatment should include the use of oral activated charcoal, especially if the patient presents within 1-hour of ingestion.

Intravenous fluids are part of the initial resuscitation for overdose management particularly if the patient is hypotensive. In this situation, given the patient has presented within 1-hour it would be vital to get activated charcoal administered as soon as possible.

Intravenous paracetamol would be avoided particularly if there is an unclear history of the overdose or suspicions of a mixed overdose within which paracetamol ingestion is common.

Intravenous sodium bicarbonate is given in cases of significant aspirin overdose where the salicylate level greater than 35 mg/dL 6-hours after ingestion regardless of what the serum pH shows, as this promotes the elimination of aspirin in the urine. In such situations like this where the presentation is acute and a level is not yet available, activated charcoal would remain first-line management.

Haemodialysis can enhance the removal of salicylate from the blood in severe poisoning. Such conditions include people with high salicylate blood levels; significant neurotoxicity with features of agitation, coma, convulsions; kidney failure, pulmonary oedema, or cardiovascular instability.

Question:

A 19-year-old female is brought into the emergency department by ambulance. She has a penetrating stab wound in her chest and is haemodynamically unstable. She is 32 weeks pregnant. A FAST scan is carried out.

What is this type of scan best used for?

A.To assess foetus wellbeing

B.To assess for cardiac tamponade

C.To assess for fractures

D.To assess solid organ injury

E.To investigate for presence of free fluid

Answer:To investigate for presence of free fluid

Explanation:

FAST scans can be used to assess the presence of fluid in the abdomen and thorax

Important for meLess important

FAST scans (focused assessment with sonography for trauma), are used in trauma to quickly assess the extent of free fluid in the chest, peritoneal or pericardial cavities. This non-invasive test can be used within emergency care in the primary or secondary survey to quickly investigate the extent of free fluid or pneumothorax.

Cardiotocography (CTG), not FAST scans, are the investigation of choice to assess for foetal wellbeing. However, it is useful to know that FAST scans can be safely performed in both pregnant patients and children, and are used when trauma has occurred in the context of a pregnant patient.

FAST scans are limited in their ability to pick up cardiac tamponade and the gold-standard diagnostic test for cardiac tamponade is echocardiography.

Fractures are best picked up on X-rays and CT scans. FAST scans are instead used to assess for fluid in the abdomen and thorax.

This test cannot be used to assess solid organ injury. In these instances, other imaging must occur such as a formal ultrasound or CT scan.

Question:

A 54-year-old woman with a long history of rheumatoid arthritis is reviewed in clinic complaining of shortness of breath. Oxygen saturations are 92% on room air with spirometry showing a restrictive pattern associated with a reduced transfer factor. Which one of the following drugs is most likely to be responsible?

A.Depomederone

B.Hydroxychloroquine

C.Methotrexate

D.Ciclosporin

E.Celecoxib

Answer:Methotrexate

Explanation:

Methotrexate may cause lung fibrosis

Important for meLess important

This has patient has pulmonary fibrosis which may be caused by methotrexate. Other anti-rheumatoid drugs such as sulfasalazine and gold may also cause pulmonary fibrosis

Question:

An 84-year-old woman comes to see her GP because of concerns she has about her husband. She says that over the last year or so her husband has become more confused and forgetful and can often be seen talking to 'Alice', a dog the couple owned who died several years ago. She has noticed that more recently he is also falling over more and moving around the house slower.

Which of the following is the most likely diagnosis?

A.Alzheimer's Dementia

B.Frontotemporal Dementia

C.Lewy-Body Dementia

D.Parkinson's disease

E.Motor Neurone Disease

Answer:Lewy-Body Dementia

Explanation:

In order to distinguish between the answers it is important to break down the symptoms this patients has. First, given his age and the time frame in question (one year) his cognitive decline would make you suspicious of a dementia process. Then the more specific symptoms of a visual hallucinations (involving an animal) is highly suggestive of lewy-body dementia. Finally, the reducing movement and increased rate of falls could point towards a parkinsonism which further points towards the correct answer of Lewy-body dementia.

Question:

A 52-year-old female is admitted with a suspected lower respiratory tract infection. Investigations are as follows:

Chest x-ray Right lower lobe consolidation

Urinary Legionella antigen Positive

What is the most appropriate antibiotic therapy?

A.Tetracycline

B.Ceftriaxone

C.Co-amoxiclav

D.Vancomycin

E.Clarithromycin

Answer:Clarithromycin

Explanation:

Macrolides such as clarithromycin are used to treat Legionella

Important for meLess important

Question:

A 70-year-old man presents with a 6 week history of increased urinary frequency and urgency and a feeling of incomplete emptying after passing urine. Digital rectal examination reveals an enlarged prostate that feels hard and craggy. The general practitioner requests a prostate-specific antigen (PSA) blood test.

Serum PSA 12.2 ng/ml Normal range: <4.0 ng/ml

The patient is referred for prostate biopsy.

What type of cancer is most likely?

A.Adenocarcinoma

B.Small cell prostate cancer

C.Soft tissue sarcoma

D.Squamous cell cancer

E.Transitional cell cancer

Answer:Adenocarcinoma

Explanation:

Adenocarcinoma is the most common form of prostate cancer

Important for meLess important

The combination of lower urinary tract symptoms, an enlarged hard craggy prostate on digital rectal examination and grossly elevated PSA is highly suggestive of prostate cancer. Adenocarcinoma is by far the most common form of prostate cancer, accounting for more than 95% of cases.

Small cell prostate cancer is another possible diagnosis, though this is much less common than adenocarcinoma, accounting for fewer than 2% of all cases.

Squamous cell carcinoma of the prostate is another rare form of prostate cancer, accounting for between 0.5% and 1% of all prostate cancers.

Transitional cell carcinoma of the prostate is vanishingly rare. The most common form of transitional cell carcinoma is of the kidney or ureter.

Soft tissue sarcomas are a group of rare cancers that most commonly occur underneath the skin on the limbs or trunk.

Question:

A 28-year-old student nurse has attended the occupational health department for a pre-work assessment. She reports being up to date with her vaccinations and has recently felt well in herself. There is no past medical history of note.

The following blood tests are taken:

Hep B antibodies positive

Hep C antibodies negative

HIV antigen negative

Measles antibodies positive

Mumps antibodies positive

Rubella antibodies positive

Varicella-zoster antibodies negative

What is the most appropriate next step in the management of this patient?

A.Hepatitis C and varicella-zoster vaccination

B.Hepatitis C vaccination

C.Reassurance

D.Refer to infectious diseases

E.Varicella-zoster vaccination

Answer:Varicella-zoster vaccination

Explanation:

Healthcare workers who aren't naturally immune to varicella should be vaccinated

Important for meLess important

This patient's blood results show that she is not immune to varicella-zoster. Infections with chickenpox can cause a more severe reaction in adulthood with an increased risk of complications. For this reason, healthcare workers should be vaccinated against varicella-zoster if they are non-immune.

Although this patient's antibody tests show that she is not immune to hepatitis C, there is currently no vaccination available to prevent hepatitis C infection. Therefore, although the varicella-zoster vaccination is appropriate, giving both varicella-zoster and hepatitis C vaccinations is incorrect.

As there is currently no available vaccination for hepatitis C, the hepatitis C vaccination alone is incorrect.

It would be inappropriate to provide reassurance and allow this patient to return to work in a healthcare setting as she is at risk of contracting an infection with the varicella-zoster virus and suffering serious complications.

Although this patient has positive antibodies to measles, mumps and rubella, this result demonstrates effective immunity (likely from the measles, mumps and rubella (MMR) vaccination) rather than acute infection. Therefore, referral to the infectious diseases team would be inappropriate.

Question:

A 64-year-old man is brought to the emergency department after being found at home in a state of self-neglect. It is suspected that he has a neurological event causing him to lose motor function. On examination, he is hypothermic and has a right-sided weakness.

On questioning, the patient states that he has not been able to take any of his regular medications, and since stopping them has begun to feel dizzy, restless, and has been experiencing electric shock sensations across his whole body.

Stopping which medication is most likely responsible for these symptoms?

A.Atorvastatin

B.Bisoprolol

C.Gabapentin

D.Paroxetine

E.Sitagliptin

Answer:Paroxetine

Explanation:

Dizziness, electric shock sensations and anxiety are symptoms of SSRI discontinuation syndrome

Important for meLess important

This scenario describes a patient who has immediately stopped their medication due to a suspected neurological event. The patient describes dizziness, electric shock sensations, and restlessness, which are associated with a discontinuation syndrome. Discontinuation syndrome occurs with the non-gradual stopping of selective serotonin reuptake inhibitors (SSRIs), such as paroxetine. Discontinuation syndrome is why many SSRIs should be stopped gradually.

Atorvastatin is an incorrect answer. Whilst there can be adverse effects on cholesterol control when stopping atorvastatin, the described withdrawal symptoms are not typically seen.

Bisoprolol is an incorrect answer. Abruptly stopping beta-blockers can cause tachycardia and hypertension, however, the described electric shock sensations would not be typically seen.

Gabapentin is an incorrect answer. Abruptly stopping gabapentin may result in some withdrawal symptoms (such as anxiety and dizziness), however, the electric shock sensations are not commonly described and are more typical of SSRI discontinuation syndrome.

Sitagliptin is an incorrect answer. Abruptly stopping sitagliptin can result in poor glycaemic control and return of diabetes symptoms, however, the described symptoms in this scenario would not be typical.

Question:

A 43-year-old woman presents to the emergency department with a tingling sensation in her hands and feet and some difficulty swallowing, that had started 12 hours previously.

Examination showed reduced ankle jerk reflexes and 4/5 power on ankle plantarflexion bilaterally but was otherwise normal.

Lumbar puncture findings:

Colour Gin clear (Clear)

Glucose 3.2 mmol/l (>0.5\*blood glucose)

Protein 4 g/L (<0.4)

White cells 4 polymorphs (<5)

Blood glucose= 4.4 mmol/l

What is the most likely diagnosis?

A.Bacterial meningitis

B.Sarcoidosis

C.Myasthenia gravis

D.Guillain-Barre syndrome

E.Charcot-Marie Tooth

Answer:Guillain-Barre syndrome

Explanation:

An isolated result of high protein in the CSF is indicative of GBS

Important for meLess important

The classical presentation of GBS is rapid, progressive onset of muscle weakness and changes in sensation starting peripherally. Important complications to be aware of, which imply more severe disease, are bulbar symptoms (eg swallowing problems), respiratory difficulties (due to respiratory muscle weakness) and autonomic instability. On lumbar puncture, there may be an isolated raised protein in the CSF. The presentation in this case is therefore indicative of GBS.

Bacterial meningitis would have clinical signs of infection as well as low glucose and high white cells and protein in the CSF.

Sarcoidosis can cause neurological symptoms, but these are often limited to the cranial nerves. It also may cause an isolated CSF lymphocytosis.

Myasthenia gravis would cause lower motor neuron signs, but mainly affecting the muscles of the eyes, face and swallowing. Importantly, there would be no sensory symptoms and no change in the CSF.

Charcot-Marie Tooth is a genetic disorder affecting the peripheral nervous system. It would again cause lower motor neuron signs, along with sensory symptoms but would usually have a more chronic course. There would be no change in the CSF.

Question:

A 49-year-old woman presents to the emergency department with confusion and dark, reduced urine output. She is a long-distance cyclist. Yesterday she had very sore muscles but trained anyway. She has a past medical history of resolved breast cancer and she had a kidney stone of 5mm removed 1 year ago.

Her blood tests show the following:

Hb 136 g/L (115 - 160)

Platelets 220 \* 109/L (150 - 400)

WBC 6.6 \* 109/L (4.0 - 11.0)

Na+ 135 mmol/L (135 - 145)

K+ 5.4 mmol/L (3.5 - 5.0)

Urea 15.2 mmol/L (2.0 - 7.0)

Creatinine 181 µmol/L (55 - 120)

She is given 500mL of normal saline over 20 minutes, but she still has a low urine output.

What is the most likely cause of her symptoms?

A.Acute interstitial nephritis

B.Acute tubular necrosis

C.Dehydration

D.Recurrent kidney stones

E.Renal artery stenosis

Answer:Acute tubular necrosis

Explanation:

Acute tubular necrosis - poor response to fluid challenge

Important for meLess important

The correct answer is acute tubular necrosis. This patient is presenting with confusion and reduced urine output, dark in colour, which are two characteristic features of acute kidney injury (AKI). Additionally, her blood test show increased creatinine and urea, which are characteristic of AKI.

The urea: creatinine ratio is less than 100, and she did not respond to the fluid challenge, indicating that the cause of the AKI is intrinsic. The patient is a keen cyclist and has experienced fatigue and muscular pain during the previous day and her blood tests show hyperkalemia. This, in conjunction with the AKI, make the diagnosis of acute tubular necrosis secondary to rhabdomyolysis likely. Acute tubular necrosis is the most common cause of acute kidney injury. It is caused by the necrosis of tubular cells due to ischaemia or nephrotoxins, as myoglobin in this case.

Acute interstitial nephritis is a cause of acute kidney injury, mostly caused by drugs. It presents with fever, rash, and arthralgia. On blood tests, you would expect to see eosinophilia. None of these features is present in this patient, making the option incorrect.

Dehydration is a good differential, given that the patient does a lot of sport and has dark urine. But dehydration is a cause of pre-renal AKI, which would present with increased urea:creatinine ratio, whilst this patient has a normal ratio. Additionally, patients with pre-renal uraemia respond well to fluid challenge, whilst she still had a reduced urine output following it.

Recurrent kidney stones can cause post-renal obstruction. This patient is at risk of developing another kidney stone after having had one, but she did not present with strong colicky pain localised in the flank.

Renal artery stenosis is a common cause of acute kidney injury. It causes afferent arterioles to constrict, mainly due to atherosclerosis or fibromuscular dysplasia, causing a decrease in glomerular filtration and consequently reduced urine output. It is a cause of pre-renal AKI and would present with hypertension and normal urea: creatinine ratio.

Question:

A 65-year-old woman presents to the Emergency Department with lower abdominal pain and vomiting. On further questioning she has not opened her bowels for the past 2 days and feels bloated.

A CT of her abdomen is requested:

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What is the most likely diagnosis?

A.Diverticulitis

B.Small bowel obstruction secondary to a strangulated inguinal hernia

C.Linitis plastica of the stomach

D.Large bowel obstruction secondary to volvulus

E.Ovarian cancer with associated ovarian torsion

Answer:Small bowel obstruction secondary to a strangulated inguinal hernia

Explanation:

The CT shows multiple dilated loops of small bowel. CT is more sensitive than radiographs and will also demonstrate the cause in around 80% of cases. There are variable criteria for maximal small bowel obstruction, but 3.5 cm is a conservative estimate of dilated bowel.

Question:

An 80-year-old female presents to Emergency Department with headaches. On further questioning, the patient admits that she has been suffering from headaches, palpitations and dizzy spells for a few months.

Upon examination you notice she is afebrile and has an irregularly irregular pulse at a heart rate of 140 beats per minute, blood pressure = 120/80 mmHg and respirations = 20/min. You, therefore, suspect the lady is in atrial fibrillation (AF) and perform an ECG to confirm this.

What is the most appropriate first step in the management of her AF?

A.Sotalol

B.Verapamil

C.Digoxin

D.Amiodarone

E.Bisoprolol

Answer:Bisoprolol

Explanation:

In terms of anticoagulation, LMWH bridging therapy (i.e. 'covering' with heparin until the INR is within range or a NOAC has been started) is only considered if there is a very high risk of a thrombus forming in the next few days, eg. valvular disease or history of thromboembolism. Oral anticoagulation (warfarin, NOACs) options should therefore also be discussed with her as well.

Question:

An 89-year-old man with known metastatic prostate cancer is brought to the emergency department confused. He is unable to give further history but feels generally unwell. On examination his chest is clear, heart sounds normal and abdomen soft with no tenderness. His initial blood tests are shown bellow.

Na+ 134 mmol/l

K+ 4.7 mmol/l

Urea 7.8 mmol/l

Creatinine 104 µmol/l

Adjusted Ca2+ 3.5 mmol/l

Mg2+ 0.81 mmol/l

What is your first treatment?

A.CT head

B.IV bisphosphonate

C.IV fluids

D.Broad spectrum antibiotic

E.IV hydrocortisone

Answer:IV fluids

Explanation:

IV fluid therapy is the first-line management in patients with hypercalcaemia

Important for meLess important

Although there may be several causes for his presentation the most likely is malignancy induced hypercalcaemia.

The most common presenting features of which are dehydration, psychiatric manifestations and confusion, anorexia and constipation. Although hypercalcaemia can be secondary to hyperparathyroidism, sarcoidosis, hyperthyroidism, drugs (thiazide diuretics, vitamin D etc) or prolonged immobility etc, 90% of severe cases (>3.0 mmol/l) requiring admission are due to malignancy (as in this gentleman).

Treatment involves IV access and requesting appropriate biochemistry, as other electrolytes may be abnormal. Following this, chest x-ray and ECG.

Fluids resuscitation to replace deficit and maintain hydration often requires large volumes (3-4 litres in the first 24 hours) and this must be the first intervention.

If this fails to resolve the hypercalcaemia IV bisphosphonates, such as zoledronate or pamidronate can be used.

Following this specific anticancer therapies can be considered.

Question:

A 68-year-old farmer is brought to the emergency department, complaining of abdominal pain and difficulty breathing. He has vomited twice and was found to be doubly incontinent with diarrhoea and urine. His drug history is atorvastatin, metformin, ramipril, and sertraline. He reports ingestion of a pesticide.

Examination findings are excessive respiratory secretions and hypersalivation, miosis, wheeze, blood pressure 94/52 mmHg, heart rate 52 beats per minute, respiratory rate 12 breaths per minute, and oxygen saturation of 84%.

What is the first antidote he should receive?

A.Adrenaline

B.Atropine

C.Diazepam

D.Methylene blue

E.Pralidoxime

Answer:Atropine

Explanation:

Organophosphate insecticide - atropine

Important for meLess important

Atropine is the most important antidote in organophosphate poisoning. It competitively limits cholinergic activation, therefore, requires up-titration of the dose until the respiratory signs and symptoms improve.

Adrenaline is sometimes used in the situation of a poor response to high-dose atropine, but there is a limited body of evidence supporting this use.

Diazepam is only useful for this patient prophylactically as it has been shown to minimise neurocognitive dysfunction. However, it would not be life-saving in this situation given this patient is not actively seizing and his respiratory status requires treatment with atropine.

Methylene blue is used for severe methemoglobinemia. The history and examination findings do not provide any evidence of methemoglobinemia nor any related exposures.

Pralidoxime reactivates cholinesterase and was thought to be effective in organophosphate poisoning. However, evidence supporting its use is lacking. Atropine remains the most important treatment option.

Question:

A 78-year-old female presenting to her general practitioner is opportunistically screened for osteoporosis with the QFracture risk assessment tool. This identifies her risk of suffering a fragility fracture is greater than 10% and she is subsequently referred for a DEXA scan. After the DEXA scan, the patient's T-score is reported as -2.9.

Which of the following would be seen in this patient's blood results?

A.Increased ALP and calcium but normal PTH and phosphate

B.Increased calcium, ALP and PTH but decreased phosphate

C.Increased phosphate, ALP and PTH but decreased calcium

D.Normal ALP, calcium, phosphate and PTH

E.Raised ALP and PTH and decreased calcium and phosphate

Answer:Normal ALP, calcium, phosphate and PTH

Explanation:

Osteoporosis is commonly associated with normal blood test values (e.g. normal ALP, normal calcium, normal phosphate, normal PTH)

Important for meLess important

The correct answer is normal ALP, calcium, phosphate and PTH.

This patient is at high risk of developing osteoporosis, a diagnosis that is confirmed via a DEXA scan (the threshold for osteoporosis = T-score < -2.5). Osteoporosis is a disorder affecting the skeletal system characterised by loss of bone mass. Blood tests are usually normal in osteoporosis and therefore have little diagnostic value. Please note, the first-line treatment for osteoporosis is an oral bisphosphonate such as alendronate.

Increased ALP and calcium but normal PTH and phosphate are incorrect; this may be seen in cases of osteolytic metastatic disease.

Increased calcium, ALP and PTH but decreased phosphate as this would be more commonly seen in primary and tertiary hyperparathyroidism. PTH is usually secreted in response to low serum calcium. It increases osteoclast activity, causes calcium resorption and phosphate excretion and increases the production of vitamin D. The net result of PTH secretion is, therefore, an increase in serum calcium and a decrease in phosphate. In primary hyperparathyroidism, there is unregulated overproduction of PTH (most commonly caused by a parathyroid adenoma). This will therefore give high calcium and low phosphate, while the increased bone turnover caused by osteoclast activation will also produce a rise in ALP.

Increased phosphate, ALP and PTH but decreased calcium is incorrect as this is characteristic of secondary hyperparathyroidism. This condition is characterised by parathyroid hyperplasia in response to chronically low serum calcium levels (e.g. bone mineral disease associated with chronic kidney disease). In most circumstances, the increased PTH secretion will not be able to reverse the chronically low calcium and high phosphate caused by the condition. Still, the increased bone turnover caused by PTH-mediated osteoclast activation will once-again give a high ALP.

Raised ALP and PTH and decreased calcium and phosphate are incorrect as this is caused by osteomalacia/rickets. This is a condition characterised by impaired mineralization of bone and has several causes such as vitamin D deficiency, liver disease. PTH is raised in an attempt to increase calcium stores for bone mineralisation, leading to increased PTH and ALP.

Question:

A 5-year-old child presents to the emergency department accompanied by the mother with a week history of cough and low-grade fever. The mother describes the cough as barking. She has completed all the vaccinations to date.

On examination, you can observe suprasternal wall retraction at rest, but the child looks alert and reactive. The child produces strident breath sounds at rest.

What is the most appropriate management plan?

A.Admit to the paediatric ward

B.Discharge with dexamethasone

C.Discharge with oral antibiotics

D.Discharge with safety-netting

E.Non-urgent referral to ENT

Answer:Admit to the paediatric ward

Explanation:

Croup: audible stridor at rest is an indication for admission

Important for meLess important

The correct option is to admit to the paediatric ward. This patient is presenting with a clear picture of croup. This condition usually presents with stridor, a barking cough, mild pyrexia and coryzal symptoms. Additionally, in moderate cases, suprasternal wall retraction at rest is noticeable, as in this case. Children which certain red-flag presentations, such as stridor at rest should be admitted for further observation.

Discharge with dexamethasone is inappropriate as even if dexamethasone should be prescribed, this patient should be admitted as stridor at rest is an indication for admission for children with croup.

Discharge with oral antibiotics is incorrect. This child has a diagnosis of croup. A single dose of oral dexamethasone should be administered to all the children with croup, rather than antibiotics. Antibiotics would be appropriate if there was evidence suggesting a bacterial cause of symptoms.

Discharge with safety-netting is inappropriate as a single dose of oral dexamethasone should be administered to all children with croup regardless of severity. Additionally, this child has audible stridor at rest, which is an indication for admission.

A non-urgent referral to ENT would be inappropriate as stridor at rest is a red flag for immediate admission to the paediatric ward.

Question:

A 41-year-old man who was diagnosed with epilepsy around 30 years ago comes to see you. He is unsure about the driving regulations for people with epilepsy. He last had a seizure 4 years ago. His epilepsy is currently controlled with sodium valproate monotherapy. What is the minimum length of time he must be seizure free before driving a car?

A.3 months

B.6 months

C.12 months

D.2 years

E.5 years

Answer:12 months

Explanation:

Questions on the DVLA rules regarding epilepsy are common given the prevalence of epilepsy and the potential consequences of having a seizure whilst driving. This patient has established epilepsy and has not had a seizure for 4 years. The DVLA guidelines state the following;

The person with epilepsy may qualify for a driving licence if they have been free from any seizure for 1 year. This needs to include being free of minor seizures and epilepsy signs such as limb jerking, auras and absences. Episodes not involving a loss of consciousness are included.

After 5 years of being seizure free he would usually qualify for having a normal ('til 70) licence restored.

Question:

Frederich is a 75-year-old man who has recently been diagnosed with chronic kidney disease secondary to hypertension. He has come to see his GP for a review. On examination his blood pressure is 135/80 mmHg. He has no other past medical history of note. His recent investigation results are as follows:

Hb 135g/L Male: (135-180)

Na+ 145 mmol/L (135 - 145)

K+ 5 mmol/L (3.5 - 5.0)

Urea 8.2 mmol/L (2.0 - 7.0)

Creatinine 140 µmol/L (55 - 120)

eGFR 55mL/min/1.73m2 (>90 mL/min/1.73m2)

Urine albumin:Creatinine ratio 45mg/mmol (<3mg/mmol)

HbA1c 44 mmol/mol (<42 mmol/mol)

He currently takes amlodipine, atorvastatin and ferrous sulphate.

Which additional mediation should he be prescribed?

A.Aspirin

B.Bendroflumethiazide

C.Ramipril

D.Erythropoietin

E.Metformin

Answer:Ramipril

Explanation:

Patients with chronic kidney disease should be started on an ACE inhibitor if they have an ACR > 30 mg/mmol

Important for meLess important

An ACE inhibitor is prescribed in patients with chronic kidney disease and an albumin:creatinine ratio (ACR) of more than 3mg/mmol if co-existent diabetes, an ACR >30 mg/mmol if co-existent hypertension or an ACR>70mg/mmol.

Therefore ramipril is the correct answer.

Bendroflumethiazide may worsen renal failure.

Aspirin may be considered for secondary prevention of cardiovascular disease as per guidelines, but not for primary prevention.

Metformin would be indicated if there was a history of diabetes. A HbA1c of 44 mmol/mol indicated pre-diabetes, but does not require treatment.

The haemoglobin is at the lower end of normal and therefore there is no evidence of renal anaemia.

Question:

A 71-year-old man presents to the medical unit with a single generalised seizure, facial tingling and hand cramps. He has a past medical history of type 2 diabetes, CKD stage 4 and hypertension. He takes metformin, ramipril, simvastatin and Adcal D3. His initial blood test showed the following:

Sodium 135 mmol/l

Potassium 5.5 mmol/l

Phosphate 1.8 mmol/l

Magnesium 0.8 mmol/l

Corrected calcium 1.4 mmol/l

Whilst having his blood pressure checked for routine observations by the healthcare assistant, he noticed that his right hand began to spasm painfully with his wrist flexing and fingers adducting.

What is the name of this clinical sign?

A.Phalen's sign

B.Chvostek's sign

C.Froment's sign

D.Finkelstein's sign

E.Trousseau's sign

Answer:Trousseau's sign

Explanation:

Trousseau's sign: carpal spasm on inflation of BP cuff to pressure above systolic

Important for meLess important

Trousseau's sign = hypocalcaemia, often occurs after 2 minutes of cuff inflation above systolic pressure

Phalen's sign = carpal tunnel syndrome

Chvostek's sign = hypocalcaemia, tapping over parotid (CN7) causes facial muscles to twitch

Froment's sign = ulnar nerve palsy

Finkelstein's sign = De Quervain's tenosynovitis

Question:

A 65-year-old woman presents with symptoms of fatigue. Routine blood tests reveal the following:

Hb 105 g/L Male: (135-180)

Female: (115 - 160)

MCV 104 fL (80-96 fL)

Platelets 305 \* 109/L (150 - 400)

WBC 9.3 \* 109/L (4.0 - 11.0)

Subsequent blood tests reveal positive intrinsic factor antibodies. The diagnosis is discussed with the patient and the question of serious complications is raised.

What is a serious potential complication of this condition?

A.Chronic lymphocytic leukaemia

B.Gastric cancer

C.Gastritis

D.Non-Hodgkin's lymphoma

E.Oesophageal cancer

Answer:Gastric cancer

Explanation:

Pernicious anaemia predisposes to gastric carcinoma

Important for meLess important

This patient has pernicious anaemia given the macrocytic anaemia and positive intrinsic factor antibodies. Pernicious anaemia is an autoimmune disease that inactivates intrinsic factor and prevents further production. It leads to low vitamin B12 levels and anaemia. The most serious complication that can occur secondary to this condition is gastric carcinoma.

Chronic lymphocytic leukaemia is not strongly associated with pernicious anaemia. It would be more likely due to ageing and subsequent genetic mutations.

Gastritis is not necessarily a serious complication and would be more likely with other conditions such as Helicobacter pylori infection.

Non-Hodgkin's lymphoma is not strongly associated with pernicious anaemia. Like leukaemia, it is more likely related to genetic mutations acquired over time.

Oesophageal cancer is not strongly associated with pernicious anaemia. It has been associated with gastro-oesophageal reflux disease and premalignant changes in the transition zone known as Barret's oesophagus.

Question:

A 35-year-old woman presents with dyspareunia and abnormal vaginal discharge, which she describes as resembling 'cottage cheese'.

She is currently on the combined oral contraceptive pill (COCP) and her last menstrual period was 7 days ago.

Given the likely diagnosis, what treatment should be prescribed?

A.Clotrimazole intravaginal pessary

B.Oral fluconazole

C.Oral nystatin

D.Topical clotrimazole

E.Topical miconazole

Answer:Oral fluconazole

Explanation:

Oral fluconazole single-dose is first-line for non-pregnant women with vaginal thrush

Important for meLess important

The diagnosis in this scenario is vaginal candidiasis in a non-pregnant woman. Therefore, as per NICE guidelines, oral fluconazole is the first-line treatment.

Clotrimazole intravaginal pessary is incorrect as it should only be used if the patient is unable to have oral treatment (such as unsafe swallow).

Oral nystatin is incorrect as this is used for oral candidiasis.

Topical clotrimazole can be used to treat vaginal candidiasis. However, it is not the first-line treatment and should be reserved for those in which fluconazole is contraindicated or ineffective.

Topical miconazole can be used for vaginal candidiasis. However, it is not the first-line treatment and should be reserved for those in which fluconazole is contraindicated or ineffective.

Question:

A 73-year-old woman presents with episodic confusion and headaches for the past week. She has a history of alcohol excess and a background of atrial fibrillation and type 2 diabetes mellitus. Her daughter reports that she has been having frequent spells of confusion over the past few days. Last year she was assessed for frequent falls. Her current medications include bisoprolol, metformin and warfarin. Neurological examination is unremarkable and her blood sugar is 6.7 mmol/l. What is the most likely diagnosis?

A.Korsakoff's syndrome

B.Wernicke's encephalopathy

C.Extradural haematoma

D.Subarachnoid haemorrhage

E.Subdural haematoma

Answer:Subdural haematoma

Explanation:

Fluctuating confusion/consciousness? - subdural haematoma

Important for meLess important

This patient has a number of risk factors for a subdural haematoma including old age, alcoholism and anticoagulation. Korsakoff's syndrome and Wernicke's encephalopathy do not usually cause headaches.

Question:

A 64-year-old man with a history of type 2 diabetes mellitus is admitted with chest pain to the Emergency Department. An ECG shows ST elevation in the anterior leads and he is thrombolysed and transferred to the Coronary Care Unit (CCU). His usual medication includes simvastatin, gliclazide and metformin. How should his diabetes be managed whilst in CCU?

A.Stop metformin. Continue gliclazide at a higher dose

B.Stop metformin & gliclazide. Start subcutaneous insulin (basal-bolus regime)

C.Continue metformin & gliclazide at same dose

D.Stop metformin & gliclazide. Start intravenous insulin infusion

E.Stop metformin & gliclazide. Start subcutaneous insulin (biphasic insulin regime)

Answer:Stop metformin & gliclazide. Start intravenous insulin infusion

Explanation:

The benefits of tight glycaemic control following a myocardial infarction were initially established by the DIGAMI study. These findings were not repeated in the later DIGAMI 2 study. However modern clinical practice is still that type 2 diabetics are converted to intravenous insulin in the immediate period following a myocardial infarction.

NICE in 2011 recommended the following: 'Manage hyperglycaemia in patients admitted to hospital for an acute coronary syndrome (ACS) by keeping blood glucose levels below 11.0 mmol/litre while avoiding hypoglycaemia. In the first instance, consider a dose-adjusted insulin infusion with regular monitoring of blood glucose levels.'

Question:

A 33-year-old woman presents to her general practitioner for a routine antenatal visit. She is 22 weeks pregnant. It is her first pregnancy and it has been uncomplicated thus far. She does not have any significant past medical history and does not take any regular prescribed medications. She does not smoke cigarettes or drink alcohol.

Her blood pressure is 148/92 mmHg. This is confirmed on repeat assessment and was previously within normal limits in early pregnancy.

On examination, there is no oedema and her reflexes are normal.

Urinalysis is as follows:

Protein negative

Blood negative

Leucocytes negative

Glucose negative

Nitrites negative

What is the most appropriate management?

A.Amlodipine

B.Labetalol

C.Methyldopa

D.Nifedipine

E.Ramipril

Answer:Labetalol

Explanation:

Labetalol is first-line for pregnancy-induced hypertension

Important for meLess important

Labetalol is the correct answer. This woman has gestational hypertension as evidenced by the development of new-onset stage I hypertension after 20 weeks gestation. There is no proteinuria to suggest pre-eclampsia. NICE guidelines in 2019 suggest medical treatment if the blood pressure remains elevated >140/90 mmHg.

Nifedipine is incorrect. This is a second-line treatment for pregnancy-induced hypertension if labetalol is contraindicated or not tolerated.

Methyldopa is incorrect. This is a suitable option if labetalol or nifedipine are contraindicated or not tolerated.

Amlodipine is incorrect. There is not enough data available to suggest this is safe in pregnancy.

Ramipril is incorrect. This medication should be avoided in pregnancy unless absolutely essential as it may adversely affect fetal and neonatal blood pressure control and renal function. Skull defects and oligohydramnios have also been reported.

Question:

A 54-year-old woman is an inpatient on a gastroenterology ward after being admitted for an upper gastrointestinal bleed. She is reporting a 20-minute history of shortness of breath. Observations include heart rate 90 beats /min , respiratory rate 32 /min, blood pressure 85/56 mmHg, oxygen saturations 92% on air, temperature 39.7ºC.

The patient is tachypnoeic and has bilateral inspiratory crepitations. Heart sounds are normal and jugular venous pressure is normal. No rash or swelling is noted. The patient had completed a blood transfusion of 1 unit of blood 2 hours ago.

What is the most likely diagnosis?

A.Acute haemolytic reaction

B.Anaphylaxis

C.Non-haemolytic febrile reaction

D.Transfusion associated circulatory overload (TACO)

E.Transfusion related acute lung injury (TRALI)

Answer:Transfusion related acute lung injury (TRALI)

Explanation:

Transfusion Associated Circularory Overload: Hypertension, raised jugular venous pulse, afebrile, S3 present.

Transfusion Related Acute Lung Injury: Hypotension, pyrexia, normal/unchanged JVP

Important for meLess important

This scenario describes a 54-year-old woman presenting with shortness of breath 2 hours after receiving a blood transfusion. Examination and observations show hypotension, hypoxia, pyrexia, inspiratory crepitations, normal jugular venous pressure (JVP), and no signs of swelling/rash. As a result, the most likely diagnosis is transfusion related acute lung injury (TRALI). TRALI is an acute lung injury following a blood transfusion and typically occurs within 6 hours of transfusion.

Acute haemolytic reaction is incorrect. The acute haemolytic reaction is an immune response to a blood transfusion, often caused by ABO incompatibility. The presentation can include pyrexia, abdominal/flank pain, blood in the urine, and shortness of breath. It would not be the single best answer for this patient due to the auscultation findings, which are more likely to be due to TRALI.

Anaphylaxis is incorrect. Anaphylaxis is a life-threatening condition in which there is a dysregulated immune response to an allergen that causes airway and/or breathing and/or circulation problems. Anaphylaxis typically presents very quickly after being exposed to an allergen/trigger. Whilst presentation could be similar to the above scenario, anaphylaxis is a less likely answer than TRALI due to the later onset, the absence of swelling or rash, and the inspiratory crepitations (wheeze may be heard in anaphylaxis).

Non-haemolytic febrile reaction is incorrect. This is a transfusion-related reaction in which the patient experiences pyrexia which is not due to haemolysis. Patients may also report muscle pains and nausea, but would not typically present as per the scenario.

Transfusion associated circulatory overload (TACO) is incorrect. TACO is a transfusion reaction in which the blood transfusion volume is too high, causing features similar to heart failure. It can occur in patients in which the transfusion volume is too high, or in patients with heart failure. Findings can include hypertension, raised JVP, and a third heart sound. Unlike the above scenario, patients are not typically pyrexic.

Question:

An 8-year-old boy presents with classical appendicitis pain, that has migrated from the umbilicus to the right iliac fossa within the last 12 hours. When the doctor palpates the left iliac fossa, the boy feels pain in the right iliac fossa. What is the name of this eponymous sign?

A.McBurney's sign

B.Rovsing's sign

C.Psoas sign

D.Kernig's sign

E.Cope sign

Answer:Rovsing's sign

Explanation:

Rovsing's sign in appendicitis - RIF pain on palpation of LIF

Important for meLess important

Rovsing's sign is positive if palpation of the left lower quadrant of the abdomen increases the pain felt in the right lower quadrant. This may be an indicator of appendicitis, although it is not positive in all cases.

Psoas sign/ Cope's test- Patient lies on their left side and the clinician extends the right hip with the knee fully extended. Abdominal pain on this movement indicates irritation of iliopsoas and possible appendicitis. This test usually indicates an appendix that lies in the retrocaecal position.

McBurney's point- The site where the pain from appendicitis is usually most severe on palpation. The point is on the right side of the abdomen, approximately one-third of the distance from the anterior superior iliac spine to the umbilicus

Kernig's sign- Positive when the thigh is flexed at the hip and knee at 90-degree angles and subsequent extension of the knee elicits pain. This can be indicative of meningism of subarachnoid haemorrhage.

Question:

A 79-year-old woman attends the GP complaining of urinary leakage. She says for the past 2 years, she has increasingly struggled to get to the toilet on time. Now, she leaks some urine before she can make it to the bathroom. On questioning, she explains it happens at rest.

On examination, her abdomen is soft and non-tender with no palpable bladder. A urine dipstick is negative for nitrites and leukocytes.

She has no interest in surgical intervention.

Given the likely diagnosis, what is the most appropriate step in management?

A.Bladder retraining

B.Duloxetine

C.Mirabegron

D.Oxybutynin

E.Pelvic floor exercises

Answer:Bladder retraining

Explanation:

Overactive bladder: the urge to urinate is quickly followed by uncontrollable leakage ranging from a few drops to complete bladder emptying

Important for meLess important

Bladder retraining is the correct answer. This woman has a typical history of urge urinary incontinence. This is defined by the sudden urge to urinate, followed by some urine leakage or complete bladder emptying. The fact it happens at rest, with no mention of coughing or sneezing, allows you to eliminate stress urinary incontinence as the cause. Bladder retraining is the first step in the management of urge urinary incontinence and should be trialled for 6 weeks before drug intervention is considered. The idea is to gradually increase the interval between voids.

Duloxetine is incorrect. This is a combined noradrenaline and serotonin reuptake inhibitor that increases the contraction of the urethral striated muscles within the sphincter. It is used in stress urinary incontinence and may be offered to women if they decline surgical procedures. However, this woman has urge urinary incontinence so duloxetine has no role in management.

Mirabegron is incorrect. This is a useful drug alternative to an anti-muscarinic, such as oxybutynin, in the management of urge urinary incontinence. Mirabegron (a beta-3 agonist) may be useful if there is concern about anticholinergic side effects in frail elderly patients. However, this woman has not yet trialled bladder re-training, the first-line management.

Oxybutynin is incorrect. This is an anti-muscarinic used in the management of urge urinary incontinence. It is avoided in frail elderly women due to the cholinergic burden it can cause, resulting in delirium and confusion. Therefore, it would be an inappropriate drug choice in a woman of this age, furthermore, bladder re-training should be trialled first.

Pelvic floor exercises is incorrect. This is the first line of management in stress urinary incontinence. It should be trialled for 3 months, and if no improvement is seen, medical or surgical management can be discussed. It is not useful in urge urinary incontinence.

Question:

A 19-year-old man is brought to the emergency department by his father, who had just witnessed him fall over and shake violently for two minutes. The father explains he has never had an episode like this before. During the episode, he was unresponsive and soiled himself. Although initially confused, he is now orientated and alert. He looks well and his physical examination is normal. His blood glucose is 5.6 and his CT head is reported as normal. He lives with his parents and does not drive or drink alcohol.

You provide them with general and safety netting advice.

What is the most appropriate management plan?

A.Admit him to the neurology ward for further monitoring

B.Commence lamotrigine therapy and ask his GP to follow him up urgently

C.Commence sodium valproate therapy with a next-day neurology appointment

D.Discharge with no follow up

E.Refer him to the urgent outpatient neurology clinic and discharge him

Answer:Refer him to the urgent outpatient neurology clinic and discharge him

Explanation:

Following a first seizure, anti-epileptic drug treatment should only be started before specialist review in exceptional circumstances

Important for meLess important

He has likely had his first seizure. In this circumstance, NICE recommends an urgent referral for assessment by a clinician with expertise in assessing first seizures and diagnosing epilepsy.

Admitting to the neurology ward is not necessary as the seizure has self-terminated, he lives with family and now appears well. To keep him safe at home, however, he and his family should be given thorough safety netting advice (e.g., what to do if he has a further fit, when to seek medical assistance etc). As long as he and his family are happy, it is appropriate to send them home.

Commencing lamotrigine therapy would not be advisable. According to NICE guidelines, anti-epileptic drug (AED) treatment should only be started before specialist review in exceptional circumstances. As he has had normal imaging and a normal neurological examination, it would be reasonable to wait until his appointment. Additionally, although it is important to keep his GP informed, they would not be the most appropriate person to review his seizure activity.

If you were to start an AED, commencing sodium valproate would be the first-line choice in this case. However, as mentioned above, it should not be started until after specialist review.

Discharging this man with no follow up would be inappropriate. His seizure activity needs reviewing and investigating.

Question:

A 6-year-old boy presents 2 days after sustaining a laceration to his right upper eyelid. He is febrile and generally unwell. The eyelid is now acutely swollen, erythematous, and hot and tender on palpation. There is also notable ptosis. However, there is no proptosis, visual impairment or pain on eye movements.

Which of the following is the most likely diagnosis?

A.Orbital cellulitis

B.Periorbital cellulitis

C.Keratoconjunctivitis sicca

D.Viral conjunctivitis

E.Thyroid eye disease

Answer:Periorbital cellulitis

Explanation:

Periorbital (preseptal) vs Orbital cellulitis: Absence of painful movements, diplopia and visual impairment indicates the former

Important for meLess important

Whilst periorbital and orbital cellulitis have some overlying features, and both are more common in children, it is the absence of orbital signs that helps to clinically differentiate the two. Orbital cellulitis on the other hand will present with additional features indicating infection of the orbit such as painful eye movements, visual disturbance, and proptosis. Keratoconjunctivitis sicca (dry eyes) would more classically present as a gritty, painful sensation in the eye with conjunctival redness - a similar presentation to viral conjunctivitis in fact. Thyroid eye disease would not present as acutely, and there would classically be lid retraction, exophthalmos, lid lag, and ophthalmoplegia.

Sources:

Clinical management guidelines: Cellulitis preseptal and orbital; The College of Optometrists (2017)

Question:

A 6-week-old boy presents to the paediatric emergency department with fever, vomiting and reduced appetite for the last 48 hours. There are no concerns regarding his growth and development so far.

On examination, the patient appears to be lethargic and unsettled. He is tachypnoeic and his temperature is 39ºC. His blood pressure and pulse rate are within the normal range. There are no signs suggesting raised intracranial pressure. A diagnosis of bacterial meningitis is suspected at the time being and a lumbar puncture is performed.

Which of the following should be done next while waiting for the lumbar puncture results?

A.Give intravenous corticosteroids and empirical antibiotics therapy

B.Give intravenous immunoglobulin and empirical antibiotics therapy

C.Perform a CT brain scan prior to any further interventions

D.Start empirical antibiotics only

E.Start recombinant bacterial permeability-increasing protein therapy and empirical antibiotics therapy

Answer:Start empirical antibiotics only

Explanation:

Do not use corticosteroids in children younger than 3 months with suspected or confirmed bacterial meningitis

Important for meLess important

Common organisms causing bacterial meningitis according to age:

Age Organisms

Neonatal-3 months Group B streptococcus , E.coli , Listeria monocytogenes

1 month-6 years Neisseria meningitidis , Streptococcus pneumoniae , Haemophilus influenzae

>6 years Neisseria meningitidis , Streptococcus pneumoniae

In older children with bacterial meningitis, dexamethasone appears to reduce the risk of hearing loss (particularly in those with Haemophilus influenzae type b [Hib] meningitis)\*\*. However, do not use corticosteroids in children younger than 3 months with suspected or confirmed bacterial meningitis [NICE 2010] as there is insufficient evidence to prove the benefits of corticosteroids in younger children. Dexamethasone should also be avoided in those with congenital or acquired abnormalities of the central nervous system; or those with aseptic, nonbacterial, or gram-negative enteric meningitis\*\*.

Do not use activated protein C or recombinant bacterial permeability-increasing protein in children and young people with meningococcal septicaemia [NICE 2010]. Evidence has suggested that activated protein C is not associated with any survival benefit, which is consistent with the recommendation in current guidance that it should not be used.

Do not delay treatment to undertake a CT scan [NICE 2010] as bacterial meningitis is a medical emergency, and delays in starting effective antimicrobial therapy will result in increased morbidity and mortality.

Intravenous immunoglobulins are not currently recommended by guidance, and recent studies do not appear to provide

sufficient evidence to warrant their inclusion in the management of meningitis.

\*\*S.L.Kaplan. Bacterial Meningitis in Children: Dexamethasone and Other Measures to Prevent Neurologic Complications. UpToDate. Last reviewed Aug 15, 2019.

Question:

A 22-year-old woman presents to the clinic after being referred by her GP. She has a six-month history of unexplained malaise and headaches. She feels fatigued and finds walking for long distances extremely challenging as her legs start aching after she walks more than 100m.

On examination, her radial pulse is weaker on the right side. Her dorsalis pedis and posterior tibial pulses are absent bilaterally. An early diastolic decrescendo murmur heard is present. She is a non-smoker, and she is otherwise healthy.

Given the most likely diagnosis, what investigation is needed to confirm it?

A.Ankle brachial pressure index (ABPI)

B.CT thorax

C.Magnetic resonance angiography

D.Renal biopsy

E.Temporal artery biopsy

Answer:Magnetic resonance angiography

Explanation:

Vascular imaging is required to make a diagnosis of Takayasu's arteritis - either magnetic resonance angiography (MRA) or CT angiography (CTA)

Important for meLess important

The correct answer is magnetic resonance angiography. This patient is presenting with the characteristic features of Takayasu's arteritis leading to absent peripheral pulses (as in this case) or uneven blood pressure and pulses (as shown in the radial pulse). Additionally, the occlusion can cause symptoms similar to claudication due to the reduced blood flow, described as aching legs. It has been associated with aortic regurgitation (an early diastolic decrescendo murmur) in 20% of the cases. Vascular imaging is required to confirm the diagnosis; in this case, magnetic resonance angiography (MRA) is the only viable option.

Ankle brachial pressure index (ABPI) is used in the diagnosis of leg claudication, described as a manifestation of peripheral vascular disease. In this case, the diagnosis is unlikely as the patient is young and a non-smoker. Additionally, the presence of uneven pulses, aortic regurgitation and general malaise points toward a diagnosis of vasculitis, making the option incorrect.

CT thorax is incorrect. Even if Takayasu's arteritis causes occlusion of the aorta, which might be recognisable on a chest CT, vascular imaging is specifically needed to prove the involvement of the singular vessels, which might be difficult on a CT thorax.

Renal biopsy is used to prove renal involvement in many cases of medium vessels and small vessels vasculitides. The patient in the vignette presents with all features of Takayasu's arteritis (uneven or absent pulses, aortic regurgitation, claudication, malaise), making this large vessel vasculitis the most likely diagnosis. Hence, vascular imaging is the correct diagnostic tool.

Temporal artery biopsy is used to diagnose another type of large vessel vasculitis, temporal arteritis, which usually presents with headaches, scalp tenderness and jaw claudication. Temporal arteritis does not cause uneven or absent pulses, aortic regurgitation, claudication and malaise, making the option incorrect.

Question:

A 24-year-old man presents to his GP complaining of joint stiffness for the last month. The stiffness is worst in the early morning and improves with use. He has no past medical history however he has a family history of psoriasis and vitiligo. The patient smokes around ten cigarettes per day and recovered from a viral throat infection two days ago.

On examination, there is swelling in his left knee and 1st and 2nd metatarsophalangeal joints of his right foot, associated with tenderness and reduced range of active and passive movement.

What is the most likely diagnosis?

A.Ankylosing spondylitis

B.Gout

C.Psoriatic arthritis

D.Reactive arthritis

E.Rheumatoid arthritis

Answer:Psoriatic arthritis

Explanation:

Psoriatic arthropathy can present before psoriatic skin lesions - a positive family history of psoriasis may point towards this diagnosis

Important for meLess important

Psoriatic arthritis is the correct answer. The patient in the vignette presents asymmetrical polyarthritis with >30 minutes of morning stiffness, a characteristic pattern of psoriatic arthritis. Furthermore, there is a positive family history of psoriasis. In some cases, psoriatic arthritis can present before skin lesions and can be recognised by clinical patterns and family history.

Ankylosing spondylitis is incorrect here. The patient in the vignette is in the demographic most commonly affected by ankylosing spondylitis (young men); however, ankylosing spondylitis typically affects the spine and small joints of the digits. The pattern seen in this patient is more typical of psoriatic arthritis.

Gout is incorrect. Gout typically affects only the small joints of the body, characteristically the 1st metatarsophalangeal joint. Patients with gout are often older and have a history of poor diet and lack of physical activity, especially excessive ingestion of beer or red meat. The patient in the vignette is younger and has a pattern of arthritis not consistent with gout. A family history of psoriasis makes a diagnosis of psoriatic arthritis more likely.

Reactive arthritis is incorrect. In this question, the patient in the vignette has polyarthritis, whereas reactive arthritis classically presents with mono- or oligoarthritis. Furthermore, there is generally a history of a bacterial infection, such as gastroenteritis or sexually transmitted infection preceding the arthritis by a few weeks. This patient has a history of a viral illness only a few days before the beginning of the joint stiffness and a family history of psoriasis, making psoriatic arthritis more likely.

Rheumatoid arthritis is incorrect here. The presentation in the question is not typical of rheumatoid arthritis, which typically presents as symmetrical polyarthritis affecting the small joints, often in the hands. Furthermore, the family history of psoriasis makes psoriatic arthritis more likely.

Question:

A 76-year-old man is brought to the emergency department following a fall. He recently had a hip replacement and regularly takes atorvastatin, metformin, and dabigatran. CT imaging of the brain has revealed a subdural haematoma.

What antidote should be administered?

A.Andexanet alfa

B.Eltrombopag

C.Idarucizumab

D.Phytomenadione

E.Protamine

Answer:Idarucizumab

Explanation:

Bleeding on dabigatran? Can use idarucizumab to reverse

Important for meLess important

Idarucizumab is a monoclonal antibody that binds directly to dabigatran molecules with greater affinity than thrombin. Therefore, it is effective at binding and sequestering dabigatran and is the correct answer and is the only licensed option for this indication.

Andexanet alfa is used for the reversal of apixaban or rivaroxaban. It binds and sequesters direct factor Xa inhibitors. Studies have shown it may also reverse anticoagulation activity from other factor Xa inhibitors, but it has not yet been licensed for these (e.g. edoxaban).

Eltrombopag is used to treat refractory idiopathic thrombocytopenic purpura or acquired severe aplastic anaemia. It stimulates megakaryopoiesis via the JAK/STAT signalling pathway. Dabigatran exerts its activity via thrombin, and so would not be reversed by Eltrombopag.

Phytomenadione is vitamin K used for the reversal of warfarin, to replenish supplies of coagulation factors.

Protamine is used to reverse heparin. It is a peptide that binds and sequesters heparin molecules.

Question:

A 48-year-old patient with a past medical history of rheumatoid arthritis presents with abdominal pain, shortness of breath and a cough productive of purulent sputum. On abdominal palpation there is splenomegaly. On auscultation there are crackles in the both lung bases. The following observations are noted:

Heart rate 110/min

Resp rate 22/min

Temperature 38ºC

Blood pressure 90/65 mmHg

Which of the following blood results would confirm a diagnosis of Felty's syndrome?

A.Low white cell count

B.Low haemoglobin

C.Raised ESR

D.Raised bilirubin

E.Raised white cell count

Answer:Low white cell count

Explanation:

Felty’s syndrome is defined as RA, splenomegaly and low white cell count

Important for meLess important

Felty’s syndrome is a triad of rheumatoid arthritis, splenomegaly and neutropenia (low white cell count). This is important to be aware of, as patients present with recurrent and severe infections. In this case, the patient is septic, probably secondary to pneumonia.

Question:

Mr. Tumboldt, a gentleman with a severe history of eczema, is admitted to the High Dependency Unit. He is experiencing widespread erythema of his skin, with patches of scaling and exfoliation. The dermatology consultant is bleeped and diagnoses the patient with erythroderma. The consultant prescribes appropriate fluids and medications and says she should be bleeped if the patient deteriorates.

Which single potential development in the patient's condition should most prompt an urgent review by Dermatology?

A.Nausea

B.Dry mucous membranes

C.Shortness of breath

D.Mild widespread pain

E.A temperature of 37.3ºC

Answer:Shortness of breath

Explanation:

Inpatient treatment for erythroderma must be monitored for complications like dehydration, infection and high-output heart failure

Important for meLess important

Inpatient treatment for erythroderma must be monitored for complications like dehydration, infection and high-output heart failure.

Dry mucous membranes and mild pain/discomfort are features expected in erythroderma.

A temperature of 37.3ºC is not a fever. Infection is a serious complication of erythroderma, but there is no indication of this patient having one.

Nausea in this patient is likely secondary to dehydration and can be tackled if sustained despite the prescribed fluid regimen. By itself, it is not worrying enough to prompt urgent dermatology review.

New-onset of increased shortness of breath is suggestive of high output heart failure which is an emergency in the management of erythroderma.

Question:

You are a doctor on-call overnight. You are called by the nurse about an 82-year-old man on the orthopaedic geriatric ward has become increasingly confused following his total hip replacement 5 days ago.

He was complaining of considerable post-operative pain and has been given regular morphine which is managing his pain.

You go to see him and agree he is confused with an abbreviated mental test score (AMTS) of 4/10. He is unable to give you a history but consents to an examination. You assess his wound which is clean, chest is clear and abdomen soft, non-tender. Pupils are equal and reactive. The nurse reports he has been eating and drinking less.

Observations are all within normal range. Urine dip negative. Bloods taken yesterday morning demonstrated a long-standing slight normocytic anaemia and his inflammatory markers are coming down since the operation.

What is the most likely cause of his symptoms?

A.Alcohol withdrawal

B.Constipation

C.Extradural haemorrhage

D.Nosocomial infection

E.Alzheimer's disease

Answer:Constipation

Explanation:

Constipation can cause delirium in the elderly

Important for meLess important

The patient has been on opioids and is likely not mobilising as well since the operation. Both of which can contribute to constipation which can be a cause of delirium.

Alcohol withdrawal typically presents within the first 24 hours of cessation in patients who have abruptly stopped. Acute alcohol withdrawal may present with tremor, nausea, sweating, seizures, hallucination. Delirium tremens may occur typically 3 days in to cessation with global confusion and sympathetic overdrive (fever, tachycardia and hypertension). This is not the case in this patient.

Dementia (e.g. Alzheimer's) is typically a chronic cognitive impairment, the stem describes an acute confusional state.

There is no mention of a fall or sign of infection - both of which are potential reversible causes of delirium.

Question:

A 22-year-old man is involved in a road traffic accident. He is found to have a pelvic fracture. While on the ward the nursing staff report that he is complaining of lower abdominal pain. On examination you find a distended tender bladder. What is the best management?

A.10 Ch foley urethral catheter

B.Suprapubic catheter

C.16 Ch foley urethral catheter

D.18 Ch coude tip urethral catheter

E.Pain relief and review in 1 hour

Answer:Suprapubic catheter

Explanation:

This patient has possible urethral injury based on the history. Urethral catheterisation is contraindicated in this situation.

Question:

A 41-year-old woman is investigated for hot flushes and night sweats. Bloods show a significantly raised FSH level and her symptoms are attributed to the menopause. Following discussions with the patient she elects to have hormone replacement treatment. What is the most significant risk of prescribing an oestrogen-only preparation rather than a combined oestrogen-progestogen preparation?

A.Increased risk of venous thromboembolism

B.Increased risk of ovarian cancer

C.Increased risk of endometrial cancer

D.Increased risk of breast cancer

E.Increased risk of colorectal cancer

Answer:Increased risk of endometrial cancer

Explanation:

HRT: unopposed oestrogen increases risk of endometrial cancer

Important for meLess important

Question:

A 58-year-old woman presents to the emergency department with gradual onset abdominal distension with discomfort, anorexia and nausea, and weight loss. She has not been investigated for this previously. She is discussed with the radiologist who recommends for her to have a CT chest, abdomen and pelvis. The conclusion of the report is below.

CT chest, abdomen and pelvis conclusion:

Extensive metastatic disease with reactive lymphadenopathy in the abdomen and pelvis, with moderate ascites. No bony metastatic spread or lesions. No definitive primary is identified.

Which of the following should be part of your initial diagnostic investigations?

A.CA 125

B.Chest x-ray

C.CT brain

D.PSA

E.Serum electrophoresis and urine Bence Jones protein

Answer:CA 125

Explanation:

CA 125 should form part of the diagnostic work-up in a woman found to have an abdominal malignancy of unknown primary

Important for meLess important

CA 125 should form part of the diagnostic work-up in a woman found to have an abdominal malignancy of unknown primary. The reason CA 125 is so important in this lady is because it is a tumour marker for ovarian malignancy which often presents with non-specific abdominal symptoms. Extensive ovarian cancer can often spread to fill much of the abdominal cavity and if the disease is extensive it may be hard on a CT scan to convincingly identify a primary tumour. While CA 125 is non-specific and is elevated in many conditions which cause peritoneal irritation if it was the only blood test which was elevated then it would warrant specific more focused diagnostic investigations. She would also need a screen of other blood tests including FBC, U&E, LFT, calcium, urinalysis, LDH, AFP and hCG. She would also need a colonoscopy. The patient does not need a chest x-ray as she has had a CT chest. CT brain is not indicated at this stage. PSA is not indicated as she is female. Serum electrophoresis and urine Bence Jones protein is not necessary at this stage because she does not have any documented lytic lesions on her scan.

Question:

A 59-year-old woman attends for her annual diabetes review. She has had a diagnosis of type two diabetes for the last 2 years, and currently takes metformin 500mg tds. She is experiencing no side effects and is concordant with medication advice. There is no other significant past medical history.

Her most recent HbA1c was recorded as 55 mmol/mol. You consider altering her current medication.

What is the target HbA1c for this patient?

A.42 mmol/mol

B.46 mmol/mol

C.48 mmol/mol

D.52 mmol/mol

E.53 mmol/mol

Answer:48 mmol/mol

Explanation:

The standard HbA1c target in type 2 diabetes mellitus is 48 mmol/mol

Important for meLess important

The standard HbA1c target in type 2 diabetes mellitus is 48 mmol/mol for those taking a signal drug not associated with hypoglycaemia (in this case metformin).

For those taking more than one medication or a single medication associated with hypoglycemia then the target would be 53 mmol/mol.

Question:

You are the doctor working in the emergency department and you have been asked to clerk a 38-year-old man with knee pain. He has been experiencing worsening pain in his left knee over the course of the day, and he is struggling to weight-bear on the affected leg. He reports no injury or trauma to the knee, and he has no ideas as to what may have caused his pain. He is also a known IV drug user. He is not taking any regular medications and he has no known drug allergies.

On examination, his knee is hot to touch and is markedly swollen. His observations are as follows: heart rate 107bpm; respiratory rate 18 breaths/minute; oxygen saturations 95%; blood pressure 106/65mmHg; temperature 38.9ºC. His salient blood findings are below:

Hb 142 g/L Male: (135-180)

Female: (115 - 160)

WBC 15.7 \* 109/L (4.0 - 11.0)

CRP 78 mg/L (< 5)

ESR 32 mm/hr (< 11)

The synovial fluid of the knee is aspirated and is sent for analysis. A culture of Staphylococcus aureus is grown.

Given the likely diagnosis, what is the most appropriate first-line IV antibiotic therapy?

A.Cefotaxime

B.Ceftriaxone

C.Clindamycin

D.Flucloxacillin

E.Vancomycin

Answer:Flucloxacillin

Explanation:

Septic arthritis: IV flucloxacillin

Important for meLess important

An intravenous drug user with an acute, hot and swollen knee is most likely to have septic arthritis. Other features that would point towards this are: fever, inability to weight-bare, and raised inflammatory markers. The Kocher criteria is used to aid this diagnosis (see notes).

Using the BNF, the first-line IV antibiotic is flucloxacillin as this is aimed at gram-positive cocci. It is often the most common first-line choice for musculoskeletal and soft tissue infection with those have no allergies.

Whilst clindamycin may also be appropriate, this is only used in those who are penicillin-allergic.

Vancomycin would typically be used if the strain was MRSA.

Ceftriaxone or cefotaxime would be sensible if the bacteria grown was gram-negative, or if the person was young with gonococcal arthritis.

Question:

A 50-year-old woman with Barrett’s oesophagus attended her regular 2-3 yearly screening for an upper gastrointestinal (GI) endoscopy. Areas of tissue proximal to the lower oesophageal junction were biopsied and sent for histological analysis which showed high-grade dysplasia. Previous screening endoscopies have revealed metaplasia only.

Her past medical history includes anxiety. She takes regular omeprazole. She has a 10 pack-year smoking history, drinks 14 units of alcohol per week and her BMI is 34kg/m².

What is the single most appropriate management?

A.Advise her on lifestyle changes and increase PPI dose

B.Advise her to return to screening after 3 years

C.Offer endoscopic intervention

D.Repeat endoscopy after 6 months

E.Refer to upper GI surgeons for oesophagectomy

Answer:Offer endoscopic intervention

Explanation:

Dysplasia on biopsy in Barrett's oesophagus requires an endoscopic intervention

Important for meLess important

Endoscopic intervention is the single most appropriate management option at this stage. High-grade dysplasia is treated with endoscopic therapy and is preferred over oesophagectomy or surveillance.

This patient should definitely be advised about lifestyle changes, as she has several risk factors. Advice would include information on smoking cessation, assistance to lose weight if possible and encouragement to cut down alcohol use. However, this would not be the single most appropriate management for high-grade dysplasia. This management plan alone would be most appropriate for a patient with a diagnosis of 'indefinite for dysplasia'.

Advising her to return for screening after 3 years would not be appropriate as it risks allowing the dysplasia to progress to adenocarcinoma. Returning to screening after 3 years would be appropriate if screening revealed metaplasia only.

Repeat endoscopy after 6 months is incorrect. It would be appropriate for patients found with low-grade dysplasia.

Referring to upper GI surgeons for oesophagectomy would not be appropriate as this option is usually reserved for T1b cancer.

Question:

A 49-year-old woman presents to her general practitioner with a non-productive cough and shortness of breath. On examination, there was some dullness to percussion on the right upper lobe, but other than that the examination was unremarkable. She has a history of tuberculosis, which she was treated for previously. She also has Crohn's disease for which she takes regular prednisolone. An X-ray is taken which shows a target-shaped lesion in the right upper lobe with air crescent sign present. There is no significant family history.

Given the presentation, what is the most likely diagnosis?

A.Aspergilloma

B.Bronchiectasis

C.Histiocytosis

D.Reactivation of tuberculosis

E.Sarcoidosis

Answer:Aspergilloma

Explanation:

An aspergilloma may arise in a lung cavity that developed secondary to previous tuberculosis

Important for meLess important

Aspergilloma is the correct answer. An aspergilloma is a fungal mass that is found in pre-formed body cavities. It is generally secondary to tuberculosis. Other cavitary diseases predisposing to aspergilloma include sarcoidosis, bronchiectasis, and ankylosing spondylitis. This patient has a past history of tuberculosis which is a significant risk factor, as well as the use of immunosuppressive medications like corticosteroids. Mild haemoptysis may occur in some patients which suggests the lesion has eroded into a neighbouring blood vessel. The air crescent sign on chest x-ray is a characteristic finding of aspergilloma where a crescent of air that surrounds a radiopaque mass present in a lung cavity is visible.

Bronchiectasis is not the correct answer here. In addition to the haemoptysis, we would expect other features such as a significant history of a cough with productive sputum. On examination, we would hear widespread crackles. It would also not explain the x-ray findings.

Histiocytosis is also incorrect. Whilst it is also a cause of upper lobe fibrosis like aspergilloma, it is a disease that is more frequent in children under 15 years of age. It is also a condition that causes clonal proliferation of pathogenic langerhan cells that leads to inflammation and tissue destruction around the body. This leads to systemic symptoms such as bone pain, skin rash, and polyuria.

Reactivation of tuberculosis is not the correct option. We would expect some systemic symptoms with reactivation of tuberculosis such as weight loss, anorexia, or night sweats. Tuberculosis would also not explain the x-ray findings. We would expect fibro-nodular opacities in the upper lobes in TB.

Sarcoidosis is also not correct. Whilst sarcoidosis can predispose to aspergilloma, it is not what this patient is suffering from. We would expect more systemic symptoms with sarcoidosis such as arthralgia and lymphadenopathy. It would also not explain the x-ray findings in this patient. We would expect bilateral hilar lymphadenopathy if the patient has sarcoidosis.

Question:

A 35-year-old nulliparous lady with Factor V Leiden has come for her first antenatal appointment; she has previously had an unprovoked venous thromboembolism (VTE). The attending doctor discusses thromboprophylaxis with her due to her history. Based on her risk, which treatment pathway should be used?

A.Warfarin antenatally + 6 weeks postpartum

B.No anticoagulation needed

C.Low molecular weight heparin (LMWH) antenatally + 6 weeks postpartum

D.Warfarin 6 weeks postpartum

E.LMWH 6 weeks postpartum

Answer:Low molecular weight heparin (LMWH) antenatally + 6 weeks postpartum

Explanation:

Factor V Leiden is an inherited condition which results in Factor V being resistant to degradation by activated Protein C; this predisposes affected individuals to development of clots.

The RCOG has provided guidance for thromboprophylaxis in pregnant women (Green-top Guideline No.37a). Since this lady has had a previous VTE, she is at high-risk antenatally and postnatally and hence requires both antenatal and postnatal prophylaxis. Note that anyone who receives antenatal prophylaxis must receive 6 weeks of postnatal prophylaxis.

Question:

A 6-year-old boy is brought to the GP by his mother. Over the last day, he has developed an intensely itchy rash.

His temperature is 37.6ºC. On examination, the GP notes multiple erythematous, crusted vesicles and punched-out erosions on the face and neck.

The GP previously saw him 2 years ago and prescribed treatment for erythematous, itchy papules and dry, scaly skin in the creases of his neck and arms. This treatment helped control her son's symptoms but he has recently run out.

What is the most appropriate next step in management?

A.Prescribe the original treatment again

B.Prescribe topical emollients

C.Refer routinely to dermatology

D.Step up the original treatment to a stronger potency

E.Urgently admit him to secondary care

Answer:Urgently admit him to secondary care

Explanation:

Same-day referral to a dermatologist is recommended if eczema herpeticum is suspected

Important for meLess important

Urgently admit him to secondary care is correct. This child has signs and symptoms of eczema herpeticum as they have multiple erythematous vesicles and punched-out erosions on a background of eczema (the itchy papules and dry, scaly skin in the creases of his neck and arms). This is a typical scenario of eczema herpeticum where a child has eczema that suddenly worsens. Eczema herpeticum in children can have serious consequences such as scarring, eye involvement and death and requires immediate hospital admission.

Prescribe the original treatment again is incorrect. The most likely original treatment was hydrocortisone, a topical steroid used in the management of eczema. This would be appropriate if this patient were presenting with a flare of their eczema, however, the presence of the rapidly-progressive itchy rash with crusted vesicles and punched-out erosions suggests the development of eczema herpeticum, necessitating immediate hospital admission.

Prescribe topical emollients is incorrect. Although these are used in eczema, treatment with emollients alone is inadequate for eczema herpeticum. This patient must be admitted to hospital and assessed by a dermatologist, with antiviral treatment considered.

Refer routinely to dermatology is incorrect. Eczema herpeticum requires an immediate assessment. A routine dermatology referral is inappropriate due to the potentially serious complications that can develop.

Step up the original treatment to a stronger potency is incorrect. Although this may be considered for an exacerbation of eczema, this would not be sufficient for the management of eczema herpeticum.

Question:

During an early morning ward round you approach Dawn, a 68-year-old woman, who was admitted 1 week ago for suspected pneumonia. She appears drowsy and isn't responding to your questions. A full assessment reveals a Glasgow coma scale (GCS) of 12 and a blood glucose concentration of 2.5mmol/L. She has a viable cannula on her left hand.

What is the first step in managing this patient?

A.Intramuscular (IM) insulin

B.Intravenous (IV) glucagon

C.IV glucose

D.Orange juice

E.Oral glucose 40% gel

Answer:IV glucose

Explanation:

Hypoglycaemia with impaired GCS: give IV Glucose if there is access

Important for meLess important

As this patient has good intravenous access, IV glucose should be given. The BNF recommends 10-20% glucose be given as an infusion over 15 minutes through a large-gauge needle. Glucose at this concentration is an irritant, so large veins should be prioritised.

Insulin is not the correct answer in this case. Dawn is hypoglycaemic so requires treatment that will increase the glucose concentration in her blood. Insulin will actually reduce her glucose concentration so would make her condition worse.

Glucagon is not the most appropriate answer in this case. It is typically used first-line in a situation where the patient cannot swallow and has no IV access, so glucose cannot be given. Glucose is preferred to glucagon, when available, as it is more reliable and takes effect faster.

Fruit juice and oral glucose gel are recommended to treat hypoglycaemia in patients who are conscious and able to swallow. As this patient has a reduced GCS, she is at an increased risk of aspiration therefore parenteral options are preferred.

Question:

A 47-year-old woman attends her GP surgery for a routine cervical smear. Subsequently, she is telephoned and informed that the smear was inadequate. She remembers previously having an inadequate smear over a decade ago.

Which of the following is the appropriate course of action?

A.Refer for colposcopy

B.Refer to gynaecology

C.Repeat smear in 1 month

D.Repeat smear in 3 months

E.Repeat smear in 3 years

Answer:Repeat smear in 3 months

Explanation:

Cervical cancer screening: if smear inadequate then repeat within 3 months

Important for meLess important

The correct answer is to repeat the smear in 3 months - this is standard practice after an inadequate smear. The previous inadequate smear one decade ago is a red herring and plays no part in the management now.

Repeating a smear in 1 month or 3 years is therefore incorrect.

Referral for colposcopy at this stage is incorrect - if the second smear in 3 months' time is also inadequate, a referral is then indicated.

Referral to gynaecology is incorrect - as above, it should be directly for colposcopy if warranted in 3 months' time.

Question:

Tom is a 32-year-old man who has been admitted under Section 2 of the Mental Health Act.

He has a history of depression and was recently referred for a Mental Health Act assessment because his family were concerned about him. He has been talking about his insides rotting and believes that he is going to die in his sleep. He cannot be convinced otherwise. He is not eating, barely drinking and lacks energy, concentration and motivation. Just prior to the Assessment he used a biro pen to cut into his forearm to 'prove that there is nothing inside that will bleed', and this required reconstructive surgery.

He is admitted to a psychiatric hospital and is commenced on an SSRI and an antipsychotic. One week into his admission the nurses call you because he is scoring highly on the Early Warning Score.

On examination you find Tom to be confused. He has a temperature of 39ºC and is sweating. His heart rate is 130 beats/min and his blood pressure is 80/50mmHg. He complains of muscle stiffness but is not sure when this began. Cogwheel rigidity is present.

Urgent blood tests reveal the following:

Hb 155 g/L Male: (135-180)

Female: (115 - 160)

Platelets 200 \* 109/L (150 - 400)

WBC 18 \* 109/L (4.0 - 11.0)

Creatine Kinase 2032 9/L (32-294)

Na+ 135 mmol/L (135 - 145)

K+ 4.9 mmol/L (3.5 - 5.0)

Urea 3.0 mmol/L (2.0 - 7.0)

Creatinine 118 µmol/L (55 - 120)

What is the likely cause of his symptoms?

A.Amphetamine intoxication

B.Encephalitis

C.Neuroleptic malignant syndrome

D.Sepsis secondary to forearm wound

E.Serotonin syndrome

Answer:Neuroleptic malignant syndrome

Explanation:

Neuroleptic malignant syndrome is a life-threatening reaction that can occur in response to antipsychotic medication

Important for meLess important

This patient is displaying signs and symptoms of neuroleptic malignant syndrome (NMS).

Amphetamine intoxication can cause alertness, tachycardia, hypotension or hypertension as well as agitation. It is unlikely to cause raised creatine kinase or muscle rigidity. In this scenario amphetamine use is also unlikely as there is no history of drug use and he is under Section 2 of the MHA therefore less likely to have access to drugs.

Encephalitis is an important differential diagnosis of confusion and fever. Symptoms may also include headaches, meningism and seizures. Cogwheel rigidity would not be expected in encephalitis.

Sepsis is important to consider given the fever, tachycardia and hypotension but sepsis would not cause muscle rigidity or raised creatine kinase.

Serotonin syndrome can present in a very similar manner to NMS. One main difference is that serotonin syndrome presents over hours rather than days like in NMS. Serotonin syndrome features include profuse sweating, myoclonus, diarrhoea and hyperreflexia. It does not cause a raised white cell count, bradykinesia or muscle rigidity.

Question:

A 6-year-old boy is brought for review. You can see from his records that he has been treated for constipation in the past but is otherwise fit and well. His mother reports that he is currently passing only one hard stool every 4-5 days. The stool is described as being like 'rabbit droppings'. There is no history of overflow soiling or diarrhoea. Examination of the abdomen is unremarkable. What is the most appropriate first-line intervention?

A.Advice on diet/fluid intake + lactulose

B.Advice on diet/fluid intake

C.Advice on diet/fluid intake + Movicol Paediatric Plain

D.Advice on diet/fluid intake + refer to local Constipation Nurse for support

E.Advice on diet/fluid intake + senna

Answer:Advice on diet/fluid intake + Movicol Paediatric Plain

Explanation:

Constipation in children: macrogols (e.g. Movicol) is first-line

Important for meLess important

Please see the new NICE guidelines for more information.

Question:

A 36-year-old male comes into your clinic with an 8-hour history of a red painful leg. He was jogging in the park when he cut himself on a branch. On examination, his left leg is tender and warm. You diagnose cellulitis and ask the patient if he has any allergies. He responds that he developed a widespread rash to amoxicillin when younger.

What antibiotic do you prescribe?

A.Ceftriaxone

B.Ciprofloxacin

C.Clarithromycin

D.Flucloxacillin

E.Co-amoxiclav

Answer:Clarithromycin

Explanation:

Patients with cellulitis who are penicillin allergic can be given clarithromycin, erythromycin (in pregnancy) or doxycyline

Important for meLess important

Penicillin's are highly allergenic. Current BNF guidance for patients with cellulitis who are allergic to penicillin is to give them clarithromycin. Clindamycin can be given however it has a poorer adverse effect profile than clarithromycin. Flucloxacillin and co-amoxiclav contain penicillin. Ceftriaxone is not given for cellulitis. Ciprofloxacin can be prescribed to children with cellulitis who are penicillin allergic who are also suffering from varicella but it would not be given to this patient.

Question:

A 19-year-old man has been having difficulty exercising during his gym sessions. He becomes wheezy and short of breath on minimal exertion. This is quite a recent development. He has always been very athletic. He has a history of eczema and there is a family history of atopy.

Which of the following investigations would be most diagnostic of the underlying diagnosis?

A.Exhaled FeNO (Fractional exhaled Nitric Oxide) of 22 parts per billion

B.A post-bronchodilator improvement in lung volume of 150 ml

C.A post-bronchodilator improvement in FEV1 of 14%

D.A peak expiratory flow rate variability of 10% daily

E.An FEV1/FVC ratio of 73%

Answer:A post-bronchodilator improvement in FEV1 of 14%

Explanation:

An increase in the FEV1 of 12% or more after inhalation of a short-acting bronchodilator is indicative of asthma

Important for meLess important

Asthma may be diagnosed if any of the following criteria are met (in adults)

An exhaled FeNO of 40 parts per billion or greater (hence option 1 is incorrect)

A post-bronchodilator improvement in lung volume of 200 ml (hence option 2 is incorrect)

A post-bronchodilator improvement in FEV1 of 12% or more (hence option 3 is CORRECT)

A peak expiratory flow rate variability of 20% or more (hence option 4 is incorrect)

An FEV1/FVC ratio <70% (it is an obstructive lung disease) - hence option 5 is incorrect

Question:

A 22-year-old male calls an ambulance reporting to have drunk some insecticide in an attempt to end his life. He is a final year agriculture studies student who is struggling with his mental health. On assessment, he is drowsy and reluctant to talk. His eyes continuously water and he is drooling saliva. He appears to have had some urinary and faecal incontinence.

Which examination finding would you expect?

A.Bradycardia

B.Hypertension

C.Muscle rigidity

D.Mydriasis

E.Tachypnoea

Answer:Bradycardia

Explanation:

Organophosphate insecticide poisoning - bradycardia

Important for meLess important

This patient is presenting with signs and symptoms consistent with organophosphate poisoning (insecticide poisoning). Organophosphates stimulate sympathetic and parasympathetic nervous systems however, in clinical practice and in typical scenarios overstimulation of the parasympathetic system predominates. Key pointers in the vignette that confirm this can be remembered with the mnemonic 'DUMBELS':

D: defaecation & diaphoresis.

U: urinary incontinence.

M: miosis (pupil constriction).

B: bradycardia

E: emesis.

L: lacrimation.

S: salivation.

Organophosphate poisoning is typically associated with low blood pressure. If the patient had hypertension, it would more likely be associated with a stimulant overdose (such as amphetamine).

Muscle rigidity is not seen in organophosphate poisoning - patients will generally have muscle weakness and fasciculations. Opioids (such as fentanyl) overdoses can cause muscle rigidity.

Mydriasis, or pupillary dilatation, is seen in overdose with ecstasy, cocaine, and hallucinogenics. In organophosphate poisoning, there would be pupillary constriction seen (miosis).

Tachypnoea is associated with cholinergic drug overdoses. In contrast, organophosphates would produce respiratory depression.

The toxidrome chart is useful to consider 'classic' toxidrome presentations, however in reality this can vary:

SYMPTOMS Pupils Bowel sounds BP HR RR Temp Diaphoresis

anticholinergic dilated decreased high high high high dry

cholinergic miotic - down high high high sweaty

hallucinogenic dilated increased high high high high -

sedative dilated decreased down down down down dry

sympathomimetic dilated increased high high high high increased

Question:

A 62-year-old male attends his general practitioner for review after having high blood pressure recorded at his six-month check-up. He has a past medical history of heart failure, asthma, and type 2 diabetes. His current medications are lisinopril, salbutamol inhaler, atorvastatin, and metformin. His home blood pressure readings over the past fortnight show an average blood pressure reading of 156/92mmHg. Due to this, his doctor advises him that he would benefit from the addition of another medication to his treatment regime to manage his hypertension.

What is the most appropriate medication for this patient given his new diagnosis?

A.Bisoprolol

B.Felodipine

C.Furosemide

D.Spironolactone

E.Verapamil

Answer:Felodipine

Explanation:

Dihydropyridines (e.g. amlodipine) are less likely to exacerbate heart failure than verapamil

Important for meLess important

This patient is presenting with hypertension which requires medical management on a background of heart failure, diabetes and asthma. The most appropriate management option for this patient due to his comorbidities is a calcium channel blocker, such as felodipine. It is important to note that the calcium channel blocker, verapamil would be an inappropriate choice due to its highly negative inotropic effect - reducing cardiac output, slowing the heart rate, and the risk of impaired AV conduction which can lead to total heart block.

It would be inappropriate to prescribe bisoprolol to an asthmatic patient - which is why he does not already receive it for his heart failure. Furthermore, beta-blockers are the fourth line management option for hypertension so a calcium channel blocker should be trialled first.

Furosemide is a third-line management option for a patient with hypertension. While furosemide may be appropriate later in this patient's medical journey, due to his heart failure and hypertension, it is not necessary at this point for the patient to have a diuretic as there are alternative management options and there is no indication of fluid retention in the patient's description.

Spironolactone is another fourth-line management option for treating hypertension and should not be used unless calcium channel blockers have been trialled. This drug should also only be used when serum potassium has been assessed as it functions as a potassium-sparing diuretic.

As previously discussed, verapamil is highly negatively inotropic and can lead to total heart block in patients with heart failure. Due to this patient's medical comorbidities, it would be inappropriate to start him on a non-dihydropyridine calcium channel blocker.

Question:

A 29-year-old woman vaginally delivers a large female child following an uneventful pregnancy. Which of the following best describes a third-degree tear of the perineum?

A.Injury to skin only

B.Injury to the perineum involving the anal sphincter complex

C.Injury to the perineal muscles but not the anal sphincter

D.Injury to the perineum involving the anal sphincter complex and anal epithelium

E.Injury to the vagina but not the anal sphincter

Answer:Injury to the perineum involving the anal sphincter complex

Explanation:

Question:

A 74-year-old woman attends the clinic with a 12-month history of widespread bone pain and lower limb weakness. On examination, you note grade 4 weakness of the proximal lower limb muscles.

Blood results are as follows:

Calcium 2.05 mmol/L (2.1-2.6)

Phosphate 0.6 mmol/L (0.8-1.4)

PTH 21.2 pmol/L (1.6 - 6.9)

ALP 260 u/L (30 - 100)

What is the most likely diagnosis?

A.Osteomalacia

B.Osteopenia

C.Osteoporosis

D.Primary hyperparathyroidism

E.Rickets

Answer:Osteomalacia

Explanation:

Low serum calcium, low serum phosphate, raised ALP and raised PTH - osteomalacia

Important for meLess important

Osteomalacia is the correct answer. The clinical features (widespread bone pain and proximal myopathy), and laboratory features (low serum calcium, low serum phosphate, raised ALP and raised PTH) are classic of this disorder.

Osteopenia and Osteoporosis are incorrect. These are quantitative, not qualitative, disorders of bone mineralisation. Laboratory bone profile results are usually normal, and the diagnosis relies on a DEXA scan.

Primary hyperparathyroidism is incorrect. This condition is characterised by hypercalcemia with a raised or inappropriately normal PTH.

Rickets has a similar disease process to osteomalacia (e.g. disorder of impaired mineralisation of the osteoid) however this disease occurs in growing children. It causes bone pain, poor growth and soft, weak bones that can lead to bone deformities.

Question:

A 71-year-old man presents to the emergency department complaining of new sudden-onset double vision and weakness in his right arm and leg. He has a history of atrial fibrillation for which he says he has been forgetting to take his medication.

On examination, slight ptosis of the left eye is observed. The left pupil appears dilated and the eye is abducted and depressed.

His capillary blood glucose and oxygen saturations are normal, and a non-contrast CT head is ordered.

Given the likely diagnosis, where is the site of the likely cause of his presentation?

A.Left anterior inferior cerebellar artery

B.Left posterior cerebral artery

C.Left posterior inferior cerebellar artery

D.Right anterior inferior cerebellar artery

E.Right posterior cerebral artery

Answer:Left posterior cerebral artery

Explanation:

Ipsilateral oculomotor palsy and contralateral weakness of the upper and lower extremity - branches of the posterior cerebral artery that supply the midbrain

Important for meLess important

Left posterior cerebral artery is correct. This patient has presented with ventral midbrain syndrome, otherwise known as Weber syndrome. This occurs due to an occlusion of the branches of the posterior cerebral artery which supply the ventral midbrain. In this case, the occlusion may be a result of an embolus due to uncontrolled atrial fibrillation. The oculomotor nerve runs within and exits at the midbrain. A lesion to this nerve will cause a down (depressed) and out (abducted) eye position along with a dilated pupil. The cerebral peduncles at the ventral midbrain contain the uncrossed tracts of the corticospinal tract. Therefore, ischaemia in this area will cause an ipsilateral oculomotor nerve palsy, and contralateral arm and leg weakness. The left posterior cerebral artery is where the occlusion must be, as the oculomotor palsy signs occur on the left, and the corticospinal signs occur on the right.

Right anterior inferior cerebellar artery is incorrect. The right anterior inferior cerebellar artery supplies the pons and therefore, this would not cause an oculomotor nerve palsy. This would cause signs such as ipsilateral facial paralysis and deafness, contralateral limb and torso pain with temperature loss, and ataxia.

Left anterior inferior cerebellar artery is incorrect. The left anterior inferior cerebellar artery supplies the pons and therefore, this would not cause an oculomotor nerve palsy. This would cause signs such as ipsilateral facial paralysis and deafness, contralateral limb and torso pain with temperature loss, and ataxia.

Left posterior inferior cerebellar artery is incorrect. This vessel supplies the medulla. Again, this would not affect the oculomotor nerve. This would cause signs and symptoms such as ipsilateral facial pain and temperature loss, contralateral limb and torso pain with temperature loss, and ataxia.

Right posterior cerebral artery is incorrect. This would cause an oculomotor nerve palsy on the right side and weakness in the left arms and limbs.

Question:

An 11-year-old girl presents with a productive cough and fever. A chest x-ray is taken:

© Image used on license from Radiopaedia

What is the main finding on the x-ray?

A.Bilateral pneumothoraces

B.Left lingula consolidation

C.Dilated cardiomyopathy with pulmonary oedema

D.Left humeral head fracture

E.Left middle lobe consolidation

Answer:Left lingula consolidation

Explanation:

The loss of the left heart border is a classic sign of left lingula consolidation. There is no left middle lobe!

Question:

A 75-year-old man in the cardiology ward complains of muscle cramps, palpitations and constipation. Blood test are taken and the following results are found:

Sodium 140mmol/L

Potassium 3.1mmol/L

Calcium 2.2mmol/L

Phosphate 1.1mmol/L

Magnesium 0.7mmol/L

What drug is most likely to have caused this derangement?

A.Bumetanide

B.Digoxin

C.Enalapril

D.Propranolol

E.Spironolactone

Answer:Bumetanide

Explanation:

Loop diuretics may cause hypokalaemia

Important for meLess important

Bumetanide is a loop diuretic that is known to cause hypokalaemia. Other adverse effects include hypocalcaemia, metabolic alkalosis, ototoxicity and gout.

Digoxin may cause hyperkalaemia in digoxin toxicity, but is not known to cause hypokalaemia.

Enalapril is an ace inhibitor. These drugs are associated with hyperkalaemia rather than hypokalaemia. Other adverse effects include; dry cough, hypotension and angioedema.

Propranolol is a non-selective beta blocker, which is not known to cause hypokalaemia. Adverse effects associated with non-selective beta-blockers include; bronchospasm, hypertriglyceridemia and hypoglycaemia.

Spironolactone is a potassium sparing diuretic and is associated with hyperkalaemia rather than hypokalaemia. Other side effects include gynaecomastia and GI disturbances.

Question:

A 62-year-old woman presents to her general practitioner with pain and swelling in the small joints of her hands, which has been persistently present for approximately eight weeks. She has no significant past medical history and does not take any regular medications.

On examination, the 2nd and 3rd proximal interphalangeal joints and swollen and tender on both hands.

Plain radiography of the hands is arranged, which demonstrates juxta-articular osteopenia.

What is the most likely diagnosis?

A.Gout

B.Osteoarthritis

C.Pseudogout

D.Psoriatic arthritis

E.Rheumatoid arthritis

Answer:Rheumatoid arthritis

Explanation:

Juxta-articular osteoporosis/osteopenia is an early x-ray feature of rheumatoid arthritis

Important for meLess important

Rheumatoid arthritis is the correct answer. The patient presents with a chronic history of pain and swelling in the small joints of the hands. This suggests a possible diagnosis of inflammatory arthritis. The x-ray findings of juxta-articular osteopenia suggest rheumatoid arthritis as the cause.

Gout is incorrect. Gout almost invariably starts in the feet before progressing to involve the hands. Therefore, new swelling in the hands without prior disease in the feet make gout unlikely. Additionally, in established gout, plain radiography may demonstrate central erosions and tophi rather than juxta-articular osteopenia.

Osteoarthritis is incorrect. While this could also cause pain and swelling in the PIP joints, the x-ray findings of juxta-articular osteopenia are not typical of this condition. X-ray changes suggestive of osteoarthritis include subchondral sclerosis, subchondral cysts and osteophytes.

Pseudogout is incorrect. Typically this condition causes self-limiting acute episodes of arthritis in large joints i.e. wrist, elbow, shoulder and knees. However, it can in some cases cause a small joint polyarthritis. The x-ray would demonstrate chondrocalcinosis rather than juxta-articular osteopenia in this case.

Psoriatic arthritis is incorrect. This can present in a 'rheumatoid-like' fashion and clinically could be consistent with bilateral PIP swelling. However, the x-ray would more likely demonstrate juxta-articular new bone formation rather than osteopenia.

Question:

A 35-year-old male presents to the emergency department with right upper quadrant pain that has come on over the past 24 hours. This has been accompanied by pruritus and fever. He denies any weight loss.

He tells you that he sees a specialist for ongoing treatment of Hep B. He reports being compliant with his medications and says he has never had any symptoms since diagnosis. He denies drinking alcohol but says that he does use recreational drugs.

On examination, he appears jaundiced and has needle track marks on his arms.

Which of these is the most likely diagnosis?

A.Peptic ulcer

B.Gallstones

C.Hepatocellular carcinoma

D.Hepatitis D superinfection

E.Alcoholic liver disease

Answer:Hepatitis D superinfection

Explanation:

Hepatitis D superinfection is an differential for chronic hepatitis B patients with acute flare up

Important for meLess important

Hepatitis D should be remembered as a possibility in Hep B patients with risk factors such as intravenous drug use (IVDU).

Hepatocellular carcinoma is an important differential diagnosis in any patient with chronic liver disease, but the short duration of symptoms, young age of the patient, and lack of weight loss make it less likely although still important to rule out.

Peptic ulcers are common but often related to alcohol / NSAID use rather than IVDU. Alcoholic liver disease is also less likely given lack of alcohol history. Gallstones would typically cause colicky pain after eating.

Question:

A 48-year-old male presents with a 8 week history of epistaxis and nasal stuffiness. On examination there is evidence of nasal crusting. A chest x-ray demonstrates multiple cavitary lesions.

What is the most appropriate test from the options below?

A.Anti-CCP (cyclic citrullinated peptide) antibody

B.Anti-Ro / Anti-La antibodies

C.Anti-Jo1

D.Anti-dsDNA antibody

E.ANCA (anti-neutrophil cytoplasmic antibody)

Answer:ANCA (anti-neutrophil cytoplasmic antibody)

Explanation:

Granulomatosis with polyangiitis - cANCA positive

Important for meLess important

The clinical features are suggestive of granulomatosis with polyangiitis (GPA), formerly known as Wegener's granulomatosis (WG). A positive ANCA (anti-neutrophil cytoplasmic antibody) can assist in making the diagnosis.

Question:

A 25-year-old man presents complaining of dysuria and pain in his left knee. Three weeks previously he had suffered a severe bout of diarrhoea. What is the most likely diagnosis?

A.Reactive arthritis

B.Disseminated gonococcal infection

C.Behcet's syndrome

D.Ulcerative colitis

E.Rheumatoid arthritis

Answer:Reactive arthritis

Explanation:

Urethritis + arthritis + conjunctivitis = reactive arthritis

Important for meLess important

Two of the classic three features of reactive arthritis (urethritis, arthritis and conjunctivitis) are present in this patient

Question:

A man is recovering after having an operation to remove a meningioma in his left temporal lobe. What sort of visual field defect is he at risk of having following the procedure?

A.Right inferior homonymous quadrantanopia

B.Right superior homonymous quadrantanopia

C.Left inferior homonymous quadrantanopia

D.Right homonymous hemianopia with macula sparing

E.Left superior homonymous quadrantanopia

Answer:Right superior homonymous quadrantanopia

Explanation:

Visual field defects:

left homonymous hemianopia means visual field defect to the left, i.e. lesion of right optic tract

homonymous quadrantanopias: PITS (Parietal-Inferior, Temporal-Superior)

incongruous defects = optic tract lesion; congruous defects= optic radiation lesion or occipital cortex

Important for meLess important

Question:

A 57-year-old gentleman presents to the emergency department complaining of nausea, vomiting and abdominal pain. His urine and serum test results show elevated ketone levels and his serum glucose level is 3mmol/L. An ABG is performed and shows the following results:

pH 7.24

PaO2 14.7 kPa

PaCO2 3.5 kPa

HCO3 13 mEq/L

Which one of the following is most likely to be responsible for these findings?

A.Hyperosmolar hyperglycemic state

B.Diabetic ketoacidosis

C.Alcoholic ketoacidosis

D.Diabetic hypoglycemic episode

E.Gastroenteritis

Answer:Alcoholic ketoacidosis

Explanation:

Metabolic ketoacidosis with normal or low glucose: think alcohol

Important for meLess important

This gentleman is suffering a metabolic ketoacidosis with partial respiratory compensation. Diabetic or alcoholic ketoacidosis could cause this, however, a serum glucose of 3mmol/L makes diabetic ketoacidosis unlikely to be the cause. Hence this patient is likely to be suffering from alcoholic ketoacidosis.

A hyperosmolar hyperglycemic state would present with raised serum glucose and normal ketone levels.

A diabetic hypoglycemic episode would not usually present with a raised ketone level or metabolic acidosis.

Gastroenteritis may present with electrolyte disturbances and in some cases a metabolic acidosis, however, serum ketone levels would not usually be elevated.

Question:

A 62-year-old woman presented to the GP with severe tiredness and muscle pain around her shoulder and hips. This started 3 weeks ago and had become worse since. She was still able to walk up and down the stairs although this might be painful. She also complained of some stiffness, especially in the morning. The stiffness got better throughout the day. She denied any swelling in her joints or rash. On examination, there was no evidence of muscle wasting.

Which of the following supports the diagnosis of polymyalgia rheumatica?

A.ESR of 7mm/h

B.Poor response to low dose prednisone

C.Photophobia

D.Normal power on resisted movements of shoulder and hip

E.Raised CK

Answer:Normal power on resisted movements of shoulder and hip

Explanation:

There is no true weakness of limb girdles in polymyalgia rheumatica on examination. Any weakness of muscles is due to myalgia (pain inhibition)

Important for meLess important

There is no true weakness of limb girdles in PMR. However, sufferers of PMR may complain of weakness but this is mainly due to pain inhibition. ESR is usually elevated in PMR. CK is normal in PMR (no true myositis). Photophobia is not a feature of PMR.

Question:

A 22-year-old female, gravidity 1 and parity 0 at 10 weeks' gestation is involved in a high speed vehicle collision and her abdomen hits the steering wheel. Maternal vital signs are stable. No uterine contractions are present, and there is no vaginal bleeding. U/S shows an intact placenta. Which is the most appropriate next step?

A.Caesarean delivery

B.Betamethasone

C.Blood type and Rhesus testing

D.Induce labour

E.Discharge home on bed rest

Answer:Blood type and Rhesus testing

Explanation:

Important points:

A pregnant woman with abdominal trauma should have Rhesus testing asap because women who are Rhesus-negative should be given anti-D to prevent Rhesus isoimmunization.

Question:

A 58-year-old man presents to the GP with a six month history of fatigue and abdominal discomfort. His past medical history and family history are unremarkable. On examination he has massive splenomegaly.

Full blood count results are as follows:

Hb 100 g/L Male: (135-180)

Platelets 500 \* 109/L (150 - 400)

WBC 120 \* 109/L (4.0 - 11.0)

You request a blood film which shows myeloblasts and granulocytosis.

What is the most likely diagnosis?

A.Acute myeloid leukaemia

B.Anaemia of chronic disease

C.Chronic lymphocytic leukaemia

D.Chronic myeloid leukaemia

E.Hodgkin lymphoma

Answer:Chronic myeloid leukaemia

Explanation:

In chronic myeloid leukaemia there is an increase in granulocytes at different stages of maturation +/- thrombocytosis

Important for meLess important

Chronic myeloid leukaemia (CML) is the correct answer. Patients often present with unspecific symptoms. Common symptoms include symptomatic anaemia, abdominal discomfort due to splenomegaly, weight loss and fever. The blood film shows granulocytosis but also myeloid blast cells which are indicative of a myeloid leukaemia. It is important to note that in CML, platelets can be low, normal or raised.

The symptoms of acute myeloid leukaemia would likely appear earlier and be more severe. Symptoms include shortness of breath, weakness, recurrent infections and bruising/bleeding.

There is no chronic disease mentioned in the patients past medical history.

Chronic lymphocytic leukaemia is a cancer arising from a different cell line. The blood film may show small or medium sized lymphocytes. The majority of patients are asymptomatic.

Hodgkin lymphoma would likely present differently. The most common symptom is lymphadenopathy. Other presenting symptoms include night sweats, weight loss and breathlessness.

Question:

A 72-year-old woman presents with a several-month history of an ulcer overlying the medial aspect of the left leg. She has had chronic leg swelling for many years and a previous deep vein thrombosis in the same leg.

On examination, both legs are oedematous but the left is more than the right. A large, shallow ulcer is visible, superior to the medial malleolus; it does not look infected. There is some surrounding hyperpigmentation of the skin. Investigations are performed:

Ankle-brachial pressure index 1.1 (0.9 - 1.2)

Which of the following is the most appropriate first-line management?

A.Compression bandaging

B.Compression stockings

C.Hydrocolloid dressing

D.Oral pentoxifylline

E.Silver dressing

Answer:Compression bandaging

Explanation:

Management of venous ulceration - compression bandaging

Important for meLess important

The scenario describes a venous ulcer, given the history of chronic oedema, previous deep vein thrombosis and description of the ulcer. Given that the ankle-brachial pressure index (ABPI) is normal, arterial flow is not impaired and so first-line management involves the use of compression bandaging - usually four-layer. Compression bandaging has the strongest evidence base out of venous ulcer management options.

Compression stockings should be offered once the ulcer has healed, to prevent recurrence. They should not, however, be used immediately - compression bandaging should first be used.

Hydrocolloid dressings, and indeed other dressings, do not have much evidence to suggest benefit. Compression bandaging should instead be used.

Oral pentoxifylline is an effective adjunct to compression bandaging. It acts as a peripheral vasodilator, improving the healing rate. It is not first-line; bandaging is the correct option here and pentoxifylline may be used in addition to this.

Silver is an antimicrobial dressing. There is no evidence of infection here and so this would not be appropriate. Antimicrobial dressings are not routinely indicated in the management of venous ulcers.

Question:

An 81-year-old woman is brought to her general practitioner by her concerned son who reports that she has been unable to cope at home following an acute ischaemic stroke she suffered 8 weeks ago. The son supplies the general practitioner with a CT brain report that confirms a lesion was identified within the M1 segment of the left middle cerebral artery. During the consultation, the general practitioner performs a mini-mental state examination (MMSE). The woman appears to understand all of the instructions and performs well. She speaks fluently but has difficulty repeating 'apple, table, penny' immediately after hearing the phrase.

What is the most accurate description of the woman's language deficit?

A.Broca's dysphasia

B.Conduction dysphasia

C.Dysarthria

D.Global dysphasia

E.Wernicke's dysphasia

Answer:Conduction dysphasia

Explanation:

Conduction dysphasia: speech fluent, but repetition poor. Comprehension is relatively intact

Important for meLess important

This woman appears to have conduction dysphasia, which is characterised by fluent speech despite significantly impaired repetition of words/phrases spoken by others. Conduction dysphasia is caused by lesions involving the supramarginal gyrus, which is located in the parietal lobe and receives blood supply from the middle cerebral artery.

Wernicke's dysphasia is characterised by difficulty understanding written and spoken language despite intact speech fluency. Wernicke's dysphasia is caused by lesions involving the superior temporal gyrus.

Broca's (expressive) dysphasia typically presents with partial or complete loss of language production (spoken or written) despite retention of language comprehension. Broca's dysphasia is caused by lesions involving the inferior frontal gyrus.

Patients with global dysphasia are typically only able to produce and comprehend a very small number of words. The capacity to write and speak is significantly impaired and comprehension of language is similarly heavily affected. Global dysphasia is caused by lesions involving both the superior temporal gyrus and inferior frontal gyrus.

Cerebellar lesions can cause dysarthria, which is a motor speech disorder distinct from aphasia. Patients with dysarthria find it difficult to form and pronounce words/phrases. However, the capacity to form meaningful spoken and written language, and understand language remains intact.

Question:

An obstetrician is preparing themselves to perform an emergency lower segmental caesarian section for a 24-year-old woman who is suffering from complications of pre-eclampsia. After making an incision through the skin and superficial and deep fascia, what layers will the obstetrician have to cut through/traverse to reach the fetus?

A.Linea alba - rectus abdominis muscle - transversalis fascia - extraperitoneal connective tissue - peritoneum - uterus

B.External oblique - internal oblique - transversalis fascia - extraperitoneal fat - parietal peritoneum - uterus

C.Rectus abdominis muscle - posterior rectus sheath - transversalis fascia - extraperitoneal connective tissue - peritoneum - uterus

D.Anterior rectus sheath - rectus abdominis muscle - transversalis fascia - extraperitoneal connective tissue - peritoneum - uterus

E.Rectus abdominis muscle - linea alba - transversalis fascia - extraperitoneal connective tissue - peritoneum - uterus

Answer:Anterior rectus sheath - rectus abdominis muscle - transversalis fascia - extraperitoneal connective tissue - peritoneum - uterus

Explanation:

This is a commonly asked question in obstetric operating theatres or in surgical vivas. A clear confident answer demonstrates a good knowledge of local anatomy and what structures need to be incised before reaching the fetus. During a lower segment Caesarian section, the following lies in between the skin and the fetus:

Superficial fascia

Deep fascia

Anterior rectus sheath

Rectus abdominis muscle (not cut, rather pushed laterally following incision of the linea alba)

Transversalis fascia

Extraperitoneal connective tissue

Peritoneum

Uterus

Question:

Venous ulceration is most characteristically seen above the:

A.Lateral malleolus

B.Greater trochanter

C.Sacrum

D.Medial malleolus

E.Pre-tibial area

Answer:Medial malleolus

Explanation:

Question:

A 54-year-old female is receiving a course of chemotherapy for breast cancer. She is experiencing troublesome vomiting which has not been helped by domperidone. What is the most appropriate next management step?

A.Add an antihistamine

B.Add a 5HT2 antagonist

C.Add a phenothiazine

D.Add a dopamine receptor antagonist

E.Add a 5HT3 antagonist

Answer:Add a 5HT3 antagonist

Explanation:

Question:

A 35-year-old man attends your surgery two days after being struck on the lateral aspect of his right knee by the bumper of a car travelling at low speed. He is able to walk, albeit with an antalgic gait. However, he is unable to dorsiflex the ankle, evert the foot or extend his toes. There is loss of sensation of the dorsum of the foot. Which structure is he most likely to have damaged?

A.Saphenous nerve

B.Femoral nerve

C.Sciatic nerve

D.Common peroneal nerve

E.Tibial nerve

Answer:Common peroneal nerve

Explanation:

Common peroneal nerve lesion can cause weakness of foot dorsiflexion and foot eversion

Important for meLess important

The common peroneal nerve supplies the muscles of the peroneal and anterior compartment of the leg and sensation to the dorsum of the foot.

It travels through the popliteal fossa, wrapping around the head of the fibula (where it is sometimes palpable).

Habitual leg crossing, prolonged bed rest, hyperflexion of the knee, pressure in obstetric stirrups and conditioning in ballet dancers are typical 'textbook' examples of scenarios where peroneal neuropathy can occur as a result of nerve compression against the head of the fibular. Transient trauma at this site (as in this scenario) can cause a temporary neurapraxia, whereas prolonged or more severe trauma can result in permanent foot drop.

Question:

Each one of the following is a feature of organophosphate poisoning, except:

A.Defecation

B.Mydriasis

C.Salivation

D.Lacrimation

E.Urination

Answer:Mydriasis

Explanation:

Question:

A 54-year-old woman with a history of tertiary syphilis and severe rheumatoid arthritis on immunosuppressants was referred to the respiratory clinic following her complaint of dyspnoea. On physical examination, a new soft high-pitched diastolic murmur was auscultated. She was discussed with cardiology who advised the team to perform a routine echocardiogram.

What condition is the echocardiogram most likely to show?

A.Aortic regurgitation

B.Aortic stenosis

C.Mitral prolapse

D.Mitral regurgitation

E.Mitral stenosis

Answer:Aortic regurgitation

Explanation:

Aortic regurgitation typically causes an early diastolic murmur

Important for meLess important

Aortic regurgitation typically causes an early diastolic murmur and is seen in tertiary cardiovascular syphilis and rheumatoid arthritis. Aortic regurgitation is the most frequent complication of syphilitic aortitis, occurring in 60% of those with cardiovascular syphilis. Aortic incompetence secondary to connective tissue diseases including rheumatoid arthritis has a relatively accelerated course rapidly leading to severe left ventricular failure.

Aortic stenosis produces a loud systolic ejection murmur which is commonly due to old-age-related valvular degeneration and calcification. This is therefore unlikely the case here.

Mitral valve prolapse is caused by valve tissue weakness. This condition is known as myxomatous degeneration. It is described as a mid-systolic click usually accompanied by a late systolic murmur. It is more common in people with connective tissue disorders, such as Marfan syndrome.

Mitral regurgitation is a high-pitched pan-systolic murmur that is heard best at the apex of the diaphragm. It can be caused due to left-ventricular dilatation from cardiomyopathy, ischaemic heart disease or dysfunction of the mitral valve apparatus.

Mitral stenosis is associated with a low-pitched, rumbling, mid-diastolic murmur heard loudest over the apex. The most common cause of mitral stenosis is rheumatic fever which is a complication of strep throat, making the answer incorrect here.

Question:

A 34-year-old long-distance runner presents to the acute medicine clinic with a longstanding history of multiple 'faints'. He describes experiencing 'dizzy spells' and a 'racing heart' and then losing consciousness. He reports regaining consciousness very quickly and upon taking a collateral history from his partner, he is not known to seize during these episodes. He has no other medical history, however did undergo an emergency appendicectomy aged seven.

His investigation findings are listed below:

Bloods All within normal range

ECG Normal sinus rhythm

BP 126/89 mmHg

What is the next best investigation to request for this gentleman?

A.EEG

B.CT head

C.24 hour ECG

D.Tilt table test

E.Cardiac MRI

Answer:24 hour ECG

Explanation:

A 24-hr ECG should be requested in those with multiple episodes of loss of consciousness with quick recovery times

Important for meLess important

Given the clinical picture and collateral history, it is unlikely that the syncopal episodes are neurological in origin. Therefore an EEG would not be the next best step in investigating these episodes. Similarly, a head CT would not add much to the clinical picture at this point. If there was a traumatic event preceding the syncopal episodes or if there were features suggestive of a haemorrhage, then a CT head would be requested much sooner.

A 24 hour ECG is the most appropriate choice of investigation despite a normal 12-lead ECG. This investigation is easy to arrange and is essential in picking up abnormalities such as atrial fibrillation and heart block. It is essential to ask patient's to document the time of any symptoms they experience during the 24 hour period, and what they were doing at the time of the symptoms. This helps in the interpretation of the recording and the symptoms.

Tilt table tests are used in the investigation of unexplained syncopal episodes, and are useful in the detection of orthostatic hypotension. However, it is much easier to perform a 24-hour ECG before requesting and scheduling a tilt-table test for a patient.

A cardiac MRI is not indicated in this patient.

Question:

You are reviewing a 56-year-old man who has recently been successfully cardioverted following an episode of ventricular tachycardia. He had recently been treated with a course of erythromycin. You are interested to see if he has an underlying prolonged QT interval. What is the most appropriate way to measure the QT interval on the ECG?

A.Time between the end of the Q wave and the start of the T wave

B.Time between the start of the Q wave and the end of the T wave

C.Time between the end of the QRS waveform and the start of the T wave

D.Time between the end of the Q wave and the end of the T wave

E.Time between the start of the Q wave and the start of the T wave

Answer:Time between the start of the Q wave and the end of the T wave

Explanation:

QT interval: Time between the start of the Q wave and the end of the T wave

Important for meLess important

Question:

A 22-year-old man diagnosed with asthma one year ago has since been using a salbutamol inhaler when required. He is otherwise well with no significant past medical history. He lives alone in a student accommodation. He does not smoke and drinks 2-3 cans of beer every week. His symptoms were well controlled but he has recently been using his inhaler more frequently, about five times per week. He also reported having night cough which disrupts his sleep. The GP decides to modify his treatment regimen to better manage the patient's symptoms and improve his quality of life. Which of the following is the most appropriate next step in the management of this patient?

A.Addition of long-acting beta agonist

B.Addition of daily steroid tablet

C.Addition of a low-dose ICS

D.Addition of leukotriene receptor antagonist

E.Switch to an ICS/LABA inhaler

Answer:Addition of a low-dose ICS

Explanation:

Adult with asthma not controlled by a SABA - add a low-dose ICS

Important for meLess important

Question:

A 19-year-old female booked an appointment to see her GP. She was 32-weeks pregnant and complained of a rash.

She mentioned she was out enjoying the hot weather and felt something bite her on her right lower leg. This became intensely itchy and she spent most of the evening inadvertently scratching away at her leg. She woke the next morning with a hot, raised, tender area of skin where she had been bitten. During the day she began feeling unwell with a fever.

On examination, the patient looked tired. Her temperature was 38ºC, oxygen saturation 97% on air, heart rate 100 beats per minute, respiratory rate of 20 breaths per minute and blood pressure 122/81 mmHg. Examination revealed a red, hot, raised area of tender skin on her right lower leg, of around 4cm in diameter. A diagnosis of cellulitis was made.

She had no other significant past medical history. She had a recorded penicillin allergy.

What is the most appropriate treatment option from the list below?

A.Clarithromycin

B.Co-amoxiclav

C.Doxycycline

D.Erythromycin

E.Flucloxacillin

Answer:Erythromycin

Explanation:

Erythromycin is the antibiotic of choice for cellulitis in pregnancy if the patient is penicillin allergic

Important for meLess important

According to the NICE antimicrobial guidance, erythromycin is the antibiotic of choice for cellulitis in pregnancy if the patient is penicillin allergic.

This woman has a penicillin allergy so should not be prescribed flucloxacillin or co-amoxiclav.

Doxycycline, as with all tetracyclines, should not be prescribed in pregnancy.

Question:

A 28-year-old man presents to his GP. Two weeks ago, he noticed an erythematous lesion on his abdomen. Since then, he has now noticed multiple similar lesions along his lower limbs. He has not had anything like this before and is worried about a sexually transmitted infection as he recently had unprotected sexual intercourse with a new partner.

The below rash is seen on examination:

His sexually transmitted infection screen is negative.

Given the likely diagnosis, what is the most appropriate management?

A.Conservative management (self-limiting)

B.Oral antibiotics

C.Oral antivirals

D.Surgical excision

E.Topical antibiotics

Answer:Conservative management (self-limiting)

Explanation:

The image demonstrates many red round patches on the skin. There is some silver scaling overlying this. This patient has presented with a single rash that started on his trunk that has then spread to his lower limbs. On examination, multiple ovoid or spherical erythematous patches with overlying scale (the silver/white lines) are observed. This is suggestive of pityriasis rosea due to the herald patch followed by multiple lesions developing. The other possible diagnosis is guttate psoriasis which can present similarly, however, typically follows a streptococcal throat infection and is not typified by a herald patch. Sexually transmitted infections are unlikely as his sexual health screen is negative.

Conservative management (self-limiting) is correct. The management of pityriasis rosea is generally conservative as the rash self-resolves within a couple of months or so.

Oral antibiotics is incorrect. This would be more appropriate for a skin infection such as cellulitis which is usually due to a bacterial infection. Oral flucloxacillin is the medication of choice for such infections unless the patient is penicillin-allergic. The history of a herald patch followed by the rest of the rash developing and the rash appearance are more in keeping with pityriasis rosea.

Oral antivirals is incorrect. This would be more appropriate for a patient with shingles if they were immunocompromised for example. This presents more specifically with a dermatomal distribution that classically does not spread past the midline. It is vesicular, meaning that there are fluid-filled sacs on the skin. This is not seen in the image.

Surgical excision is incorrect. This would be more appropriate for a patient with skin cancer, however, generally, there would not be multiple lesions and they would have a different appearance. Given the history and rash appearance, pityriasis rosea is more likely. Cancer would more likely be characterised by a slowly growing lesion on a sun-exposed area that may also change in shape and colour.

Topical antibiotics is incorrect. This is not indicated as pityriasis rosea is self-limiting and topical antibiotics would have no effect.

Question:

A 78-year-old man presents to the emergency department with shortness of breath. He has been diagnosed with community-acquired pneumonia by his general practitioner and been treated at home with antibiotics.

In the last couple of hours, he deteriorated suddenly and at the moment his heart rate is 120/min, his respiratory rate is 22/min, his oxygen saturation is 77% and the temperature is 38°C. He has a past medical history of COPD and he is a known carbon dioxide retainer.

Which one of the following options is the most appropriate to treat his low saturation?

A.BIPAP (bi-level positive airway pressure)

B.2 litres/min via nasal cannula

C.Reservoir mask at 15 litres/min

D.28% Venturi mask at 4 litres/min

E.40% Venturi mask at 10 litres/min

Answer:Reservoir mask at 15 litres/min

Explanation:

Any critically ill patient (including CO2 retainers) should initially be treated with high flow oxygen which is then titrated to achieve target sats. Hypoxia kills

Important for meLess important

The correct answer is reservoir mask at 15 litres/min. The British thoracic society (BTS) guidelines clearly indicate that any critically ill patient (including CO2 retainers) should initially be treated with high flow oxygen because hypoxia can kill the patient very rapidly. Once an acceptable saturation has been reached, you should try and tailor the saturation levels to the patient. This patient is clearly septic and this condition is indicated as an emergency by the BTS guidelines.

BIPAP (bi-level positive airway pressure) is indicated in COPD with respiratory acidosis pH 7.25-7.35, type II respiratory failure secondary to chest wall deformity, neuromuscular disease, or obstructive sleep apnoea, cardiogenic pulmonary oedema unresponsive to CPAP.

2 litres/min via nasal cannula are indicated for low oxygen supply for patients with slight respiratory distress.

28% Venturi mask at 4 litres/min is used prior to the results of blood gases in patients with risk factors for hypercapnia aiming for oxygen saturation of 88-92%.

40% Venturi mask at 10 litres/min is used when a lower percentage Venturi mask is insufficient to reach the target saturation.

Question:

A 56-year-old man presents to his GP complaining of generalised weakness. For the last 6 months, he has had increasing difficulty getting up from his chair and climbing stairs. He also reports ongoing fatigue and low mood but denies any other symptoms. He has no past medical history of note and takes no regular medications.

A routine blood test shows:

Hb 146 g/L Male: (135-180)

Platelets 268 \* 109/L (150 - 400)

WBC 7.2 \* 109/L (4.0 - 11.0)

Thyroid-stimulating hormone (TSH) 4.2 mU/L (0.5-5.5)

Creatine kinase 428 U/L (35 - 250)

eGFR 68ml/min (<90)

ESR 42 mm/hr <(age / 2)

What is the most likely diagnosis?

A.Dermatomyositis

B.Polymyalgia rheumatica

C.Polymyositis

D.Rhabdomyolysis

E.Rheumatoid arthritis

Answer:Polymyositis

Explanation:

Proximal muscle weakness + raised CK + no rash → ?polymyositis

Important for meLess important

Polymyositis is correct. This is an inflammatory disease commonly caused by Anti-Jo-1. It typically presents in male patients >40 years with symmetrical proximal muscle weakness, raised creatine kinase as a result of muscle breakdown, and the absence of rash. The active disease will also result in a raised ESR indicating active inflammation. It is commonly treated with corticosteroids and/or immunosuppressants such as methotrexate.

Dermatomyositis is incorrect. This is an inflammatory which also causes muscle weakness but will also cause a rash. Blood results in dermatomyositis are similar to that of myositis - raised creatine kinase, ESR, and the presence of autoantibodies. It is commonly associated with malignancy. As this patient does not have a rash, polymyositis is the more likely diagnosis.

Polymyalgia rheumatica (PMR) is incorrect. PMR presents with pain and stiffness in proximal joints but does not cause muscle weakness. Further, as PMR does not cause muscle breakdown, it would not explain this patient's raised creatine kinase.

Rhabdomyolysis is incorrect. This is caused by the rapid breakdown of skeletal muscle, often secondary to crush injuries or a fall with a long lie in elderly patients. Rhabdomyolysis is an acute medical issue and often leads to renal failure. Blood tests will typically reveal extremely elevated creatine kinase (>5x upper limit) and impaired renal function. As this patient reports a 6-month history and his creatine kinase is only mildly raised, rhabdomyolysis is an unlikely diagnosis.

Rheumatoid arthritis (RA) is incorrect. RA is an inflammatory joint disorder and commonly causes symmetrical pain and stiffness of the joints alongside signs of systemic disease such as fever and weight loss. It would not explain the proximal muscle weakness or the raised creatine kinase in this patient.

Question:

A 26-year-old female is admitted to hospital with headaches, fever, vomiting and muscle aches on return to the UK from a work trip to Central Asia. On examination, she is pale and sweaty and has tender splenomegaly. Her blood results are included below.

Hb 95 g/L Female: (115 - 160)

Platelets 135 \* 109/L (150 - 400)

WBC 14.3 \* 109/L (4.0 - 11.0)

Bilirubin 78 µmol/L (3 - 17)

ALP 110 u/L (30 - 100)

ALT 345 u/L (3 - 40)

Albumin 45 g/L (35 - 50)

Thick film POSITIVE

Thin film Plasmodium vivax

She is treated with chloroquine and recovers over the next week.

Which additional treatment should be given?

A.Artemisinin-based combination therapy

B.Atovaquone

C.Doxycycline

D.Primaquine

E.Quinine

Answer:Primaquine

Explanation:

Primaquine is used in non-falciparum malaria to destroy liver hypnozoites and prevent relapse

Important for meLess important

This patient has been treated acutely for a type of non-falciparum malaria with an appropriate acute treatment (chloroquine) which seems to have worked. Since Plasmodium vivax and Plasmodium ovale species both have hypnozoite stages in the liver, these need to be eradicated with an additional therapy to prevent relapse of malarial illness. Primaquine is the appropriate treatment for this.

Artemisinin-based combination therapy would have been an alternative acute treatment for this patient but does not need to be administered in addition. It is the treatment to prevent relapse that is crucial in this scenario.

Atovaquone (Malarone) is an anti-malarial often used for preventative treatment. It is not used to eradicate the hypnozoite stage.

Doxycycline is also an anti-malarial that can be used for preventative treatment. It may be used in combination with quinine as an acute treatment. Neither therapy is used for eradication of the hypnozoite stage.

Question:

A 26-year-old woman presents to rheumatology clinic asking for advice as she would like to start a family.

She and her partner both have rheumatoid arthritis, treated with weekly methotrexate. She was told when she started the medication that she would need advice regarding pregnancy.

What advice should you give?

A.The patient and her partner can continue taking methotrexate, but she will need to increase her dose of folic acid

B.The patient and her partner will both need to wait 3 months after stopping methotrexate before conceiving

C.The patient will need to wait 3 months after stopping methotrexate before conceiving. Her partner can continue methotrexate

D.The patient and her partner will both need to wait 6 months after stopping methotrexate before conceiving

E.The patient will need to wait 6 months after stopping methotrexate before conceiving. Her partner can continue methotrexate

Answer:The patient and her partner will both need to wait 6 months after stopping methotrexate before conceiving

Explanation:

Methotrexate: must be stopped at least 6 months before conception in both men and women

Important for meLess important

Methotrexate is teratogenic because its inhibition of dihydrofolate reductase affects DNA synthesis. This particularly affects the rapidly dividing cells of the fetus, but there is also evidence that its effects on DNA synthesis can damage various semen parameters. Therefore both partners must stop methotrexate for 6 months before conceiving.

It is not sufficient for just the patient to stop the methotrexate - both partners must stop, for the reasons above.

3 months is insufficient time - both partners must wait 6 months to ensure that methotrexate will not exert teratogenic effects.

While it is true that all pregnant women must take folic acid, this is insufficient to counteract the harmful effects of methotrexate on folate metabolism - and also doesn’t address the partner’s methotrexate use.

Question:

A 49-year-old woman who is known to have multiple sclerosis presents to see her GP. Her partner has noticed a change in the appearance of her eyes over the past few weeks. On examination she has a ptosis on the left side associated with a small left pupil. Fundoscopy is nomal. What is the most likely diagnosis?

A.Argyll-Robertson pupil

B.Third nerve palsy

C.Holmes-Adie pupil

D.Optic neuritis

E.Horner's syndrome

Answer:Horner's syndrome

Explanation:

Ptosis + dilated pupil = third nerve palsy; ptosis + constricted pupil = Horner's

Important for meLess important

Question:

A 20-year-old female who recently visited the jungles of Peru for 7 days presents to your clinic. She became ill on the 5th day of her trip with fever, diffuse pain in her legs and lethargy. A few days later she felt much better, however, as of today she deteriorated with visible jaundice, high fever and multiple episodes of vomiting. On examination, there are no obvious skin changes other than jaundice.

What is the most likely diagnosis?

A.Malaria

B.Dengue fever

C.Leptospirosis

D.Yellow fever

E.Hepatitis B

Answer:Yellow fever

Explanation:

Yellow fever has an incubation period of 2 to 14 days

Important for meLess important

The pattern of disease is most consistent with yellow fever. Classically it will present in two phases where the patient experiences a brief remission in between. Yellow fever is mostly concentrated in Africa but it still persists in some rural areas of South America. It can present very quickly with non-specific symptoms and it has an incubation period of 2-14 days which is fitting with this patients history. Malaria tends to present with a cyclical fever with an incubation period of over 7 days. Dengue has an incubation period of 4 to 10 days. Hepatitis B 40 to 160 days. Leptospirosis can present similarly, however, it has an incubation period of 7 to 21 days.

Question:

A 74-year-old myopic woman with known hypertension presents with a sudden, painless reduction in her vision. She describes a dense shadow obscuring her right eye, this started peripherally and has progressed towards the central vision.

On examination, she can only see hand movements in her right eye and has 6/6 visual acuity in her left eye.

What is the most likely cause of the loss of vision?

A.Central retinal artery occlusion

B.Central retinal vein occlusion

C.Optic neuritis

D.Retinal detachment

E.Vitreous hemorrhage

Answer:Retinal detachment

Explanation:

Retinal detachment is a cause of sudden painless loss of vision. It is characterised by a dense shadow starting peripherally and progressing centrally

Important for meLess important

Central retinal artery occlusion occurs due to a blockage of blood flow from thromboembolism for arteritis. It can cause a partial or complete sudden, painless loss of vision. However, this doesn't tend to occur peripherally and move centrally as described here. Typical features include afferent pupillary defect, 'cherry red' spot on a pale retina.

Central retinal vein occlusion is more common than arterial occlusion and occurs with increasing age, but unlike here is more common in patients with glaucoma. It can cause sudden painless loss of vision in any venous territory and the ophthalmoscope shows severe retinal haemorrhages.

This case is typical of retinal detachment. It occurs more commonly in people with myopia. It can be preceded by flashes and floaters and tends to present with a shadow to the vision beginning peripherally and progressing centrally.

Optic neuritis can cause sudden visual loss but this is often transient and associated with painful eye movement.

The vitreous hemorrhage causes a dark spot to a vision where the hemorrhage is rather than a shadow to the vision.

Question:

Jason, a 50-year-old man presents to the cardiac ward following a stroke. After further questioning, he reports a 4-month history of weight loss and fever. He is later examined and found to have a diastolic murmur for which he is sent for an echocardiogram

The report comes back as follows:

'A pedunculated heterogeneous mass attached to the interatrial septum of the left atrium. Mitral valve obstruction also noted'

Given the report, which of the following is the most likely diagnosis?

A.Left heart failure

B.Aortic dissection

C.Hypertrophic obstructive cardiomyopathy

D.Infective endocarditis

E.Atrial myxoma

Answer:Atrial myxoma

Explanation:

Atrial myxoma typically shows a pedunculated heterogeneous mass on echocardiogram

Important for meLess important

Atrial myxoma is a benign tumour most commonly occurring in the left atrium. It can present with the triad of mitral valve obstruction, systemic embolisation and constitutional symptoms such as breathlessness, weight loss and fever. In this case, the patient had all three, with a recent stroke, signs of mitral stenosis and the constitutional symptoms listed above.

Left heart failure would not cause a mass in the left atrium on echocardiogram and would also present with breathlessness and peripheral oedema

Aortic dissection would present with a typical tearing epigastric pain associated with hypotension and is an acute emergency, it would not cause these changes on echocardiogram

Hypertrophic obstructive cardiomyopathy is a common cause of sudden death in young patients and would not cause these changes on echocardiogram, and would not cause any of the symptoms listed above

Infective endocarditis is a differential for atrial myxoma, and thus they share many features. Infective endocarditis could cause the embolisation, fever and a new/changing murmur, all of which could explain the presentation above. However the presence of a mass on echocardiogram would not be noted, and this alone can be used to differentiate the two (even if you did not know that atrial myxoma typically caused the pedunculated heterogeneous mass as described above)

Question:

A 54-year-old man undergoing treatment for multiple myeloma presents to the cancer assessment unit feeling generally unwell.

His temperature is 38.6ºC, blood pressure is 87/56 mmHg and heart rate is 113/min. He looks diaphoretic and unwell but examination of his heart, lungs and abdomen is unremarkable.

He has had a peripherally inserted central catheter (PICC) line in place for 4-weeks. There is no surrounding erythema but it appears to be blocked.

The haematology lab calls you regarding the following result:

Neuts 0.2 \* 109/L (2.0 - 7.0)

What is the most likely organism to have caused this presentation?

A.Enterococcus faecalis

B.Staphylococcus aureus

C.Staphylococcus epidermidis

D.Streptococcus pneumoniae

E.Streptococcus pyogenes

Answer:Staphylococcus epidermidis

Explanation:

Coagulase-negative, Gram-positive bacteria such as Staphylococcus epidermidis are the most common cause of neutropenic sepsis

Important for meLess important

These are all gram-positive cocci that are common in clinical practice.

Staphylococcus epidermidis is a coagulase-negative, gram-positive cocci. It is the most common cause of neutropenic sepsis and is associated with central line infections. This patient's PICC line is blocked. In the context of sepsis without other localising features of infection, this makes 'line sepsis' the most likely cause for this presentation.

Staphylococcus aureus is a coagulase-positive, gram-positive cocci. It is implicated in skin and soft tissue infections, abscess formation, osteomyelitis and toxic shock syndrome.

Enterococcus faecalis is the most common species of enterococcus and is most commonly implicated in urinary tract infections, infective endocarditis and intra-abdominal infections.

Streptococcus pneumoniae is an alpha-haemolytic streptococcus associated with pneumonia, meningitis and otitis media.

Streptococcus pyogenes is a group A beta-haemolytic streptococci implicated in erysipelas, impetigo, cellulitis, type 2 necrotizing fasciitis and pharyngitis/tonsillitis. It can cause rheumatic fever or post-streptococcal glomerulonephritis and release of erythrogenic toxins to cause scarlet fever.

Question:

A 20-year-old woman who is in the second trimester of her first pregnancy comes for review. Unfortunately her longstanding acne has flared again and she is keen to try something to improve the situation. Which one of the following should be avoided?

A.Topical clindamycin

B.Topical azelaic acid

C.Topical benzoyl peroxide

D.Topical erythromycin

E.Topical isotretinoin

Answer:Topical isotretinoin

Explanation:

Topical isotretinoin is a type of retinoid and is therefore strongly contraindicated in pregnancy, even in the topical form.

Question:

A 25-year-old woman presents for contraceptive advice. The patient is on day 14 of her cycle which is regular and around 28-30 days long. She has no significant medical history and no regular medications. She wants a method that will be effective immediately and something she won't have to remember to take.

Which contraceptive method could be recommended to her?

A.Contraceptive depot

B.Contraceptive implant

C.Intrauterine device

D.Intrauterine system

E.Progesterone only pill

Answer:Intrauterine device

Explanation:

Contraceptives - time until effective (if not first day period):

instant: IUD

2 days: POP

7 days: COC, injection, implant, IUS

Important for meLess important

An intrauterine device is the only option here that will be effective immediately and is something she will not have to remember to take. This device is a copper-containing plastic T-shaped device that is inserted into the uterus and provides contraception immediately.

A contraceptive depot becomes effective 7 days after the injection if not administered on the first day of menstruation. It is also not reversible and not the best first-line choice in a young female.

A contraceptive implant becomes effective 7 days after insertion if not inserted on the first day of menstruation. This is a plastic device with progesterone that is implanted subdermally.

The intrauterine system becomes effective 7 days after insertion if not inserted on the first day of menstruation. This is a hormone-containing plastic T-shaped device that is inserted into the uterus. Unlike the copper counterpart, it does not provide immediate contraception.

The progesterone-only pill needs to be taken every day and is therefore not the best recommendation. It also requires 2 days before becoming effective if not taken on the first day of the period making it an inadequate choice.

Question:

A neonate is born at 32 weeks gestation via spontaneous vaginal delivery. There was no meconium staining of the liquor. Shortly after delivery he develops cyanosis, tachypnoea, grunting and sternal recession. What is the most likely diagnosis?

A.Neonatal respiratory distress syndrome (NRDS)

B.Aspiration pneumonia

C.Transient tachypnoea of the newborn

D.Pneumothorax

E.Cyanotic heart disease

Answer:Neonatal respiratory distress syndrome (NRDS)

Explanation:

It is important to be aware of risk factors when answering questions like these. Prematurity is the major risk factor for NRDS. Caesarean section is the major risk factor for tachypnoea of the newborn (TTN). Meconium staining is the major risk factor for aspiration pneumonia.

Neonates with NRDS usually present with respiratory distress shortly after birth which usually worsens over the next few days. In contrast, TTN usually presents with tachypnoea shortly after birth and often fully resolves within the first day of life. A chest radiograph can be useful. In NRDS the characteristic features are a diffuse ground glass lungs with low volumes and a bell-shaped thorax. In TTN the CXR depicts a heart failure type pattern (e.g. interstitial oedema and pleural effusions) but key distinguishing features from congenital heart disease are a normal heart size and rapid resolution of the failure type pattern within days.

Question:

A 26-year-old musician attends an appointment with his general practitioner to seek help for his anxiety. He describes worrying a great deal about social interactions with others. He prefers to be alone and doesn't like to share his beliefs with others, which others find odd.

After prompting the patient to talk about his beliefs, he talks in a high-pitched voice about horror movies and his 'spirit-guide' that helps keep him safe.

The patient denies visual or auditory hallucinations and exhibits no delusional thinking. There is no pressure of speech.

What is the most likely diagnosis?

A.Emotionally unstable personality disorder

B.Histrionic personality disorder

C.Schizoaffective disorder

D.Schizoid personality disorder

E.Schizotypal personality disorder

Answer:Schizotypal personality disorder

Explanation:

A man asks for help with social anxiety. He prefers to be alone and doesn't like to share his beliefs, which other people think are odd. He has a strong interest in the paranormal and talks in an high-pitched voice when talking about his 'spirit-guide' - schizotypal personality disorder

Important for meLess important

The correct answer is schizotypal personality disorder. Individuals with schizotypal personality disorder characteristically show 'magical thinking' that focuses on paranormal phenomena, evidenced by the patient's discussion of a 'spirit guide'. Those with schizotypal personality disorder may also have odd speech, such as that high-pitched voice the patient uses during the consultation.

Emotionally unstable personality disorder is incorrect, as this is characterised by impulsivity, feelings of emptiness, volatile relationships and repeated suicide attempts.

Histrionic personality disorder is incorrect, as there is no evidence of suggestibility, self-dramatisation, attention-seeking behaviour, or inappropriate sexual seductiveness.

Schizoaffective disorder is incorrect, as there is no evidence of previous psychotic episodes, mania, or depression. Although the patient has odd beliefs, there is no indication that these are firmly fixed delusional thoughts. Beliefs in paranormal phenomena are not necessarily delusional.

Schizoid personality disorder is incorrect, as this is characterised by social isolation, a lack of interest in sexual relationships, emotional coldness, and a preference for solitary activities.

Question:

A 23-year-old patient with a history of well-controlled epilepsy presents to general practice with her partner. They have been trying to conceive with regular sexual intercourse for the past 11 months. Her current medications include omeprazole, levetiracetam, folic acid 400 micrograms and paracetamol as required.

What medication changes are most appropriate?

A.Start letrozole 2.5 milligrams

B.Start clomiphene 50 milligrams

C.Discontinue levetiracetam

D.Folic acid 5 milligrams

E.No medications required until >12 months of regular sexual intercourse

Answer:Folic acid 5 milligrams

Explanation:

Women on antiepileptics, who try to conceive, should receive folic acid 5mg instead of 400mcg OD

Important for meLess important

This patient is trying to conceive whilst on antiepileptic and so should receive a 5 milligrams of folic acid. Any women of childbearing potential taking any antiepileptic drug should receive 5 milligrams folic acid prior to conception and continue throughout pregnancy.

Letrozole 2.5 mg is used to stimulate ovulation in patients with polycystic ovary syndrome (PCOS). However, this patient has no such diagnosis and has only been trying to conceive for <12 months, therefore no investigation or management for infertility is required at this stage.

Similarly, clomiphene is used to stimulate ovulation in patients with PCOS which is inappropriate in this patient.

Adequate control of epilepsy is of mutual benefit to mother and foetus, with levetiracetam being one of the safer antiepileptics in pregnancy. Moreover, it is potentially dangerous to discontinue this medication and any medication changes should be made by a specialist.

Although it is true that no medications should be started for infertility before 12 months of regular intercourse, this patient is at risk of having a child with a neural tube defect due to her antiepileptic medication. Therefore, she should be started on a high dose of folic acid.

Question:

A 50-year-old patient established on methotrexate for rheumatoid arthritis presents to his GP as he is concerned about possibly being exposed to chickenpox. He received a call today from his family informing him that his grandson has just been diagnosed with chickenpox.

The patient looked after his grandson 2 days ago, who did have an itchy rash at the time, but the family had thought this was just a mild reaction to a new washing powered.

What is the most appropriate management option?

A.Administer a varicella vaccination booster immediately

B.Administer varicella-zoster immunoglobulin (VZIG) immediately

C.Commence aciclovir immediately

D.Counselled the patient and family on signs and symptoms of varicella and advised to seek urgent medical care if they occur

E.Send a blood test for varicella antibodies

Answer:Send a blood test for varicella antibodies

Explanation:

Patients who are immunosuppressed secondary to long-term steroids or methotrexate should receive VZIG if they are exposed to chickenpox and have no antibodies to varicella

Important for meLess important

The patient is immunosuppressed and has had significant exposure to varicella. In these cases ideally, patients should be tested to see if they have antibodies to the varicella virus (i.e from previous infection). If the patient does not have antibodies, then they should receive VZIG. If varicella antibody testing is unavailable then VZIG should just be given. Antibody testing should not delay post-exposure prophylaxis past 7 days after initial contact.

Currently, the varicella vaccines available are not used for at-risk, exposed patients. Vaccination is reserved for a select group of individuals including non-immune healthcare workers and non-immune people who have close contact with immunosuppressed patients.

Commencing anti-virals, such as aciclovir, is incorrect as although these medications may play a role in established varicella they do not in post-exposure prophylaxis.

If available, the patient should first be tested for varicella antibodies. If the patient has antibodies again varicella then VZIG would be of no benefit and therefore should not be given.

Commencing anti-virals, such as aciclovir, is incorrect as although these medications may play a role if varicella is established they are not used for post exposure prophylaxis.

Counselling the patient and family is incorrect as the patient is immunosuppressed and has had significant exposure to varicella. The patient should ideally be tested for varicella antibodies or if testing is unavailable, or would cause a significant delay, be given VZIG.

Question:

A 75-year-old woman is brought into the general practice by her husband. Her husband complains that she has recently been spending large sums of money gambling, and has taken out several credit cards in her name. She reportedly turns from tearful to joyful without any obvious reason.

An MRI brain is completed and shows a lesion suspicious for malignancy.

Given this information, where is the likely location of the lesion?

A.Basal ganglia

B.Calcarine sulcus

C.Dorsolateral prefrontal cortex

D.Parahippocampal gyrus

E.Posterior parietal cortex

Answer:Dorsolateral prefrontal cortex

Explanation:

Frontal lobe lesions may cause disinhibition

Important for meLess important

Dorsolateral prefrontal cortex is correct as the frontal lobe has many responsibilities including executive function. Executive function encompasses working memory, self-control and inhibition and flexible thinking. Lesions to the frontal lobe can cause symptoms of disinhibition. This includes impulsivity, poor self-control and difficulty following social norms.

Basal ganglia is incorrect. A lesion to the basal ganglia would lead to difficulties with motor initiation and emotional expression. A pathology that commonly affects the basal ganglia is Parkinson's disease, in which bradykinesia, tremor, and rigidity are seen.

Calcarine sulcus is incorrect. The calcarine sulcus is part of the occipital lobe, and lesions here lead to difficulties with vision and visual perception. Depending on the area affected, symptoms could include the inability to recognise faces (prosopagnosia) and difficulty perceiving visual stimuli. Patients can be unaware that they have become blind if their optic nerves and eyes are unharmed.

Parahippocampal gyrus is incorrect. The parahippocampal gyrus is located in the temporal lobe and is responsible for memory encoding. Temporal lobe lesions can cause an impaired ability to form long-term memories and difficulties with auditory perception. The temporal lobe is also responsible for language comprehension and the ability to speak.

Posterior parietal cortex is incorrect. Parietal lobe lesions can lead to difficulties with spatial awareness and object recognition. The parietal lobe is responsible for integrating sensory function into perceptual awareness. This can also lead to hemineglect, where a patient ignores one half of their visual field. The parietal lobe can be divided into two distinct streams. The dorsal stream 'where' is responsible for spatial object location. The ventral stream 'what' is responsible for object recognition.

Question:

A 45-year-old man with a background history of alcoholic liver disease visits general practice. The GP advises him to cut down on his alcohol intake and performs a general abdominal examination. On examination, he has spider naevi present on his torso and gynecomastia. On palpation, he has hepatosplenomegaly. A full blood count is ordered. If the patient consumed alcohol immediately prior to the test, what would you expect to find?

A.Microcytic anaemia and thrombocytopenia

B.Macrocytic anaemia and thrombocytosis

C.Microcytic anaemia and thrombocytosis

D.Macrocytic anaemia and thrombocytopenia

E.Normocytic anaemia and thrombocytosis

Answer:Macrocytic anaemia and thrombocytopenia

Explanation:

Thrombocytopenia is a common finding in alcoholic liver disease

Important for meLess important

Thrombocytopenia from alcoholic liver disease occurs for many different reasons. Splenomegaly that occurs from portal hypertension and thrombopoietin deficiency. This is a good paper on the other causes: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4847598/. Splenomegaly means a larger surface area for splenic sequestration of thrombocytes. More platelets get filtered, fewer platelets in the blood. Damaged livers produce less thrombopoietin, therefore fewer megakaryocytes are produced. Recent alcohol intake would make patients have megaloblastic anaemia.

Microcytic anaemia and thrombocytopenia would be iron deficiency anaemia. Alcoholic patients lose folate and therefore would be macrocytic.

Macrocytic anaemia and thrombocytosis would be wrong because there would be fewer thrombocytes not an excess of them.

Microcytic anaemia and thrombocytosis would be wrong as described previously.

Normocytic anaemia and thrombocytosis would be wrong because acute alcohol ingestion results in megaloblastic anaemia.

Question:

You are called to see a 75-year-old man with a history of Parkinson's disease who has just come back from surgery. He has been complaining of nausea and appears to be suffering from post-operative delirium.

Which of the following drugs would be contraindicated?

A.Domperidone

B.Haloperidol

C.Lorazepam

D.Olanzapine

E.Ondansetron

Answer:Haloperidol

Explanation:

Haloperidol is contraindicated in patients with Parkinson's disease

Important for meLess important

Haloperidol is a dopamine antagonist that can worsen symptoms in those with Parkinson's disease and should be avoided.

Despite being a dopamine antagonist, domperidone does not easily cross the blood-brain barrier and is actually considered safe for treating gastrointestinal symptoms in patients with Parkinson's disease (PD) because the risk of developing extrapyramidal adverse effects is considered minimal.

Lorazepam is safe to use in Parkinson's disease.

Olanzapine is an antipsychotic that is often used to treat delirium. It is not contra-indicated in Parkinson's disease.

Ondansetron is an antiemetic which is safe to use in Parkinson's disease.

Question:

A 49-year-old Bangladeshi woman presents to her GP with a 3-month history of feeling feverish, with pains in multiple joints. Until 6 months ago she had worked as a nurse in Bangladesh, before moving to the UK to live with family. Upon further questioning, she also admits to some unintentional weight loss. On examination she has signs of an asymmetrical polyarthritis, with evidence of erythema nodosum on both shins, and firm, enlarged, painless cervical lymph nodes.

She undergoes multiple investigations, including some screening blood tests and joint arthrocentesis with microscopy, culture and sensitivity (MCS). Her results include the following:

anti-CCP Negative

RF Negative

ANA Negative

CRP 31 mg/L (< 5)

MCS joint aspiration sample No crystals; no organisms seen

What is the most likely cause of her polyarthritis?

A.Rheumatoid arthritis

B.Pseudogout

C.Systemic lupus erythematous

D.Tuberculosis

E.Behçet's disease

Answer:Tuberculosis

Explanation:

Tuberculosis can cause a polyarthritis

Important for meLess important

Tuberculosis (TB) can cause a form of reactive arthritis. This history has a number of features which put TB high up on the list of differentials; the patient is at risk from being a healthcare worker in a TB-endemic area (Bangladesh), she has a long history of fever, weight loss, painless lymphadenopathy, and erythema nodosum. Although she has no cough or haemoptysis to suggest active pulmonary TB, these are all potential features of extrapulmonary TB.

C-reactive protein (CRP) is a very non-specific marker of inflammation which would be elevated in any cause of inflammatory arthritis, so this does not really help us distinguish between different causes.

Positive anti-cyclic citrullinated peptide (anti-CCP) and rheumatoid factor (RF) autoantibodies would be associated with rheumatoid arthritis, however, both of these were negative in this case. Additionally, rheumatoid arthritis would characteristically present differently, as a symmetrical polyarthritis mainly affecting the small joints (e.g. the hands), which fluctuates throughout the day, typically being worse in the morning.

In pseudogout, joint aspiration (arthrocentesis) would yield a sample containing calcium pyrophosphate crystals, which would appear 'rhomboid-shaped' under the microscope and would demonstrate positive birefringence when viewed under polarised light.

Systemic lupus erythematous (SLE) is a systemic autoimmune disease which may also cause polyarthritis. RF and anti-neutrophil antibodies (ANA) are often positive in SLE, however ANA and RF were both negative in this patient. Finally, the history of Bangladeshi origin, healthcare worker background and painless lymphadenopathy are all far more suggestive of TB than SLE.

Behçet's disease is a systemic vasculitis which tends to cause genital ulceration and eye inflammation as well as arthritis. It typically affects young, Mediterranean, Middle Eastern and Asian men.

Question:

A 34-year-old woman has just given birth 24 hours ago. She states she is not planning on having any more children in the immediate future and would like to start a long-term contraceptive. She has a past medical history of heavy menstrual bleeding and is planning to exclusively breastfeed.

What is the most appropriate contraception for this patient?

A.Copper intrauterine device

B.Lactational amenorrhoea method

C.Levonorgestrel intrauterine system

D.Progestogen injection

E.Progestogen only pill

Answer:Levonorgestrel intrauterine system

Explanation:

The intrauterine device or intrauterine system can be inserted within 48 hours of childbirth or after 4 weeks

Important for meLess important

Levonorgestrel intrauterine system is the correct answer. It is a long-acting contraceptive that will also help to prevent any future heavy menstrual bleeding. As the patient is within 48 hours of childbirth, it can be inserted immediately.

Copper intrauterine device is not the correct answer. While this is a long-acting contraceptive and the patient is within the correct time window to have it inserted, it often causes heavy menstrual bleeding. It should therefore be avoided in those with a history of heavy menstrual bleeding.

Lactational amenorrhoea method is not the correct answer. Although lactational amenorrhoea is an effective method of contraception for women who exclusively breastfeed, it is only effective up to 6 months post-partum.

Progestogen injection is not the correct answer. While these injections can be given at any stage following pregnancy, progestogen injections must be repeated every 10-12 weeks, and are suitable for this patient's desire for a long-term contraceptive.

Progestogen only pill is not the correct answer. While this is safe to start at any stage post-partum, it is not a long-acting contraceptive. This option would be more suitable for women who are considering having further children in the near future, or if other contraceptive options are contra-indicated.

Question:

A 28-year-old man presents to his general practitioner with worsening fatigue over the past 6 months. The doctor notes excoriations on his arms, and on questioning the patient also reveals that he is troubled by persistent pruritus which is not controlled with topical steroid creams and moisturiser. His past medical history includes ulcerative colitis which is controlled with medical management.

Examination is largely unremarkable, with the patient appearing comfortable and vital signs within normal limits. The doctor is unsure but believes that there may be a degree of hepatomegaly. Blood results for the patient are up to date, so the doctor decides to progress directly to other investigations.

Which investigation is most appropriate in confirming the likely diagnosis?

A.Skin biopsy

B.Abdominal X-ray

C.CT abdomen

D.MRCP

E.Colonoscopy

Answer:MRCP

Explanation:

ERCP/MRCP are the investigations of choice in primary sclerosing cholangitis

Important for meLess important

With a background of ulcerative colitis, a patient with mild hepatomegaly, pruritus and fatigue is most likely suffering from primary sclerosing cholangitis (PSC) - a disease of unknown aetiology that is characterised by inflammation, fibrosis, and stricturing of medium to large ducts in the intrahepatic and/or extrahepatic biliary tree. Approximately 5% of patients with ulcerative colitis develop PSC, however, studies suggest 90% of people with PSC also have ulcerative colitis.

Mild, non-tender hepatomegaly is a common clinical manifestation in patients with cholestatic liver disease such as primary biliary cholangitis (PBC) or PSC. Generalised pruritus is a common manifestation of PSC, but this can also be present in other conditions.

Diagnosis is confirmed with cholangiogram obtained via ERCP or MRCP. ERCP has traditionally been the gold standard for diagnosis, and also offers the ability to perform cholangioplasty, if necessary. In practice, however, MRCP is used before ERCP since it is noninvasive, can visualise the liver, and it avoids the 10% risk of hospitalisation from ERCP in PSC patients. MRCP findings include a 'beaded' appearance of the bile ducts. While a number of medical therapies have been trialled for PSC, none have been found to alter the course of the disease.

Skin biopsy is an appropriate investigation for widespread pruritus in some patients but is more useful when a discrete lesion is present. Additionally, with this patient's presentation and history, a skin biopsy is not useful in making the diagnosis of PSC.

Abdominal X-ray is not helpful in assessing liver morphology.

CT abdomen may be useful in assessing gross liver morphology but cannot adequately visualise the intrahepatic and/or extrahepatic biliary tree to confirm the diagnosis of PSC.

Colonoscopy is a first-line investigation in the diagnosis and monitoring of this patient's ulcerative colitis, however, it would not be appropriate in this instance.

Question:

One of your patients is a 74-year-old male, with a history of chronic obstructive pulmonary disease (COPD). In the past year, he has had six exacerbations, two of which required hospital admissions.

His GP believes he could benefit from prophylactic antibiotics to reduce the frequency of COPD exacerbations.

What is the most likely antibiotic to be prescribed in this scenario?

A.Ciprofloxacin

B.Amoxicillin

C.Erythromycin

D.Azithromycin

E.Doxycycline

Answer:Azithromycin

Explanation:

Azithromycin prophylaxis is recommended in COPD patients who meet certain criteria and who continue to have exacerbations

Important for meLess important

NICE guidelines suggest a prescription of 250mg azithromycin three times per week if:

The patient no longer smokes.

Has optimised non-pharmacological management & inhaled therapies.

Referred to pulmonary rehab (if appropriate).

4 acute exacerbations in the last year (producing sputum), requiring hospital admission at least once.

Erythromycin is the incorrect answer as the NICE guidelines specifically mention azithromycin for prophylaxis.

Amoxicillin and doxycycline are commonly used in acute infective exacerbations alongside steroids, not for prophylaxis.

Ciprofloxacin may be used third-line to treat COPD exacerbations. It is commonly prescribed for respiratory infections in patients who are allergic to penicillin.

Question:

A 72-year-old man returns to the respiratory clinic for the results of a recent CT chest performed after lung findings were initially identified on a chest x-ray performed as part of a pre-operation workup.

Multiple translucent deposits were originally noted on the lung line and the CT chest has confirmed they are in keeping with pleural plaques. On questioning the patient reports he was previously employed in the building industry, working with, amongst other materials, asbestos.

What course of action is recommended for this patient?

A.No follow-up required

B.Refer immediately for palliative chemotherapy

C.Refer immediately for workup chemotherapy treatment

D.Repeat CT chest in 6 months

E.Repeat CT chest in 6 weeks

Answer:No follow-up required

Explanation:

Pleural plaques are benign and do not undergo malignant change. They, therefore don't require any follow-up.

Important for meLess important

Pleural plaques are the commonest form of asbestos-related lung changes however they do not undergo any form of malignant progression and therefore are considered benign. For this reason no follow-up is required for the presences of pleural plaques alone. Patients with exposure to asbestos and respiratory symptoms are occasionally offered some form of follow-ups but this would commonly be via repeat chest x-rays and would be infrequent (i.e. annually). Mesothelioma on the other hand is a malignant disease of the pleural secondary to asbestosis exposure. Although normally diagnosed via fluid cytology/histology, x-rays may show pleural thickening which can be confirmed on CT confirm along with the presence of pleural fluid/effusion (note these changes appear different to those of pleural plaques).

If confirmed mesothelioma treatment options are unfortunately limited. Prognosis is very poor with no intervention offering significant benefit. Palliative chemotherapy is commonly offered to patients with radiotherapy and surgery sometimes have a role in the condition.

Pleural plaques require no form of treatment and therefore workup for chemotherapy treatment is not required. There is no role for curative chemotherapy in mesothelioma either although palliative chemotherapy options are normally offered to patients.

As pleural plaques are benign there is no requirement for follow-up. Repeat X-rays may be offered in some cases but a repeat CT chest in 6 months would not be justified.

Again due to their benign nature follow-up is not required for pleural plaques and there are very limited conditions that would require a repeat CT chest in 6 weeks.

Question:

A 22-year-old man presents to the GP with recurrent lower back pain over the last 9 months. He states that his back is painful and stiff upon waking and lasts for 2-3 hours and improves throughout the day.

His past medical history is significant for Achilles tendonitis which has been treated successfully.

What clinical finding on examination would support the likely diagnosis?

A.Increased forward flexion

B.Increased lateral flexion

C.Localised spinal tenderness

D.Reduced chest expansion

E.Saddle anaesthesia

Answer:Reduced chest expansion

Explanation:

Clinical findings in anylosing spondylitis include reduced chest expansion, reduced lateral flexion and reduced forward flexion (Schober's test)

Important for meLess important

Reduced chest expansion is correct. The back pain this patient is experiencing is likely to be inflammatory in nature due to the pain and stiffness being worse and prolonged in the morning and improving throughout the day. Young men with inflammatory-like back pain should raise suspicion of ankylosing spondylitis (AS). A complication of AS can be Achilles tendonitis, which is what may have been the cause of it in this patient in the past. Due to rib involvement, AS can lead to reduced chest expansion as it can lead to breathing discomfort and taking shallower breaths over time. This can lead to scarring and a reduction in the chest's ability to expand fully.

Increased forward flexion is incorrect. A reduction in forward flexion can be found on clinical examination due to the inflammatory condition decreasing flexibility, not increased forward flexion.

Increased lateral flexion is incorrect. The decreased flexibility from inflammation of the spine results in a reduction in lateral flexion, not an increase.

Localised spinal tenderness is incorrect. If this was present, a malignancy or fracture should be suspected. It is unusual for examination to elicit localised tenderness in ankylosing spondylitis.

Saddle anaesthesia is incorrect. This is a key symptom in diagnosing cauda equina syndrome. Other signs that indicate this diagnosis include urinary retention, faecal incontinence, and bilateral sciatica which imply a surgical emergency and warrant immediate intervention. It is not seen in ankylosing spondylitis.

Question:

A 55-year-old man presents with progressive weakness and dyspnoea and a full examination is performed. Massive hepatomegaly is detected and on further investigation, his renal function is reduced with heavy proteinuria however his liver function tests appear to be normal. He is a type 2 diabetic and was just this year diagnosed with chronic obstructive pulmonary disease (COPD). There is no ongoing family history of any conditions.

Which of the following is the most likely underlying diagnosis?

A.Diabetic nephropathy

B.Hypertensive nephropathy

C.Polycystic kidney disease

D.Alpha 1-antitrypsin deficiency

E.Amyloidosis

Answer:Amyloidosis

Explanation:

Amyloidosis is a cause of hepatosplenomegaly

Important for meLess important

This question has a 55-year-old man presenting with progressive weakness and dyspnoea, hepatomegaly, proteinuria and worsening renal function. Amyloidosis is the only condition above that will explain all of this man's symptoms. Amyloidosis typically is diagnosed between the age of 50-65 and the most common presenting features are those of breathlessness and weakness. It can affect any organ system in the body, however, most commonly causes loss of renal function and proteinuria. It can also cause hepatosplenomegaly.

Diabetic nephropathy, while a common cause of kidney disease, would not cause hepatomegaly.

Hypertensive nephropathy is another cause of chronic kidney disease and is associated with the same risk factors for type 2 diabetes, however, would again, not cause hepatomegaly.

Polycystic kidney disease can be a cause of renal failure and liver hepatomegaly (cysts form on the liver as well as the kidney and can cause symptoms). However, this would likely present with a strong family history and at a younger age

Alpha 1-antitrypsin deficiency may at first seem like a good answer. As it affects both the liver and the lungs. However it would not account for his proteinuria and even if it did, this man was only diagnosed with COPD this year, alpha 1-antitrypsin would normally cause symptoms around the age of 30. As with polycystic kidney disease, you would also expect a family history.

Question:

A 56-year-old female has come to the GP because of excessive daytime sleepiness. She says that no matter how much sleep she gets she always feels tired during the day. She thinks that she sleeps well and has good sleep hygiene, her husband however says that she snores really loudly. She has no past medical history and does not take any regular medications. Her body mass index (BMI) is 32kg/m² and she does not smoke or drink alcohol. The GP examines her and finds no abnormalities. He then takes some basic observations.

What is the most likely finding?

A.Bradycardia

B.Hypertension

C.Hypotension

D.Oxygen saturations <96%

E.Tachycardia

Answer:Hypertension

Explanation:

Obstructive sleep apnoea can cause hypertension

Important for meLess important

The patient has presented with excessive sleepiness with no past medical history, drug history or systemic symptoms. She has a raised BMI which is the largest risk factor for obstructive sleep apnoea (OSA). Patients are often unaware of the condition and do not realise when they wake during an apnoeic episode and it is often associated with snoring. The condition is known to cause an increase in blood pressure due to the drop in blood oxygen levels and rise in carbon dioxide during apnoea.

Assuming she has no underlying pathology, her observations would otherwise be within normal limits.

Obstructive sleep apnoea is not known to effect heart rate so would not cause bradycardia or tachycardia.

Once awake, oxygen saturation levels usually normalise but the hypertension persists.

Question:

A 46 year old patient is on quadruple therapy (rifampicin, isoniazid, ethambutol and pyrizinamide) for a confirmed diagnosis of pulmonary tuberculosis. He presents to his respiratory follow up complaining that his vision has deteriorated, more specifically colours appear less vivid. Which medication change would you make?

A.Stop rifampicin

B.Stop isoniazid

C.Stop ethambutol

D.Stop pyrizinamide

E.Do not make any medication changes

Answer:Stop ethambutol

Explanation:

Ethambutol is associated with optic neuropathy and development of colour blindness. It should be discontinued if these symptoms develop. In clinical practice pyridoxine (vitamin B6) is given concurrently with ethambutol to try to prevent these side effects.

Question:

A 16-year-old girl presents to the neurology clinic accompanied by her parents. She has been suffering from recurrent falls for the last few months. Her parents describe her falls as sudden, where she seems to lose power in all the muscles in her body and falls to the ground if standing.

She never loses consciousness during these episodes and she always remembers them. Her past medical history comprises atopy but she is otherwise well.

The doctor arranges a set of investigations for this patient, which confirm the diagnosis.

What is the most appropriate management to prescribe?

A.Carbamazepine

B.Ethosuximide

C.Lamotrigine

D.Levetiracetam

E.Sodium valproate

Answer:Lamotrigine

Explanation:

Tonic or atonic seizures: lamotrigine is first-line for females

Important for meLess important

Lamotrigine is the correct answer. The patient in the vignette presents with a classic history of atonic seizures. These seizures are characterised by sudden weakness in all body muscles, short duration and retained awareness. Lamotrigine is recommended as the first-line anti-epileptic for managing atonic seizures in females (of childbearing potential), as sodium valproate is teratogenic by the BNF.

The BNF does not recommend carbamazepine in managing atonic seizures, as it may exacerbate seizure activity.

Ethosuximide has a narrow therapeutic profile and will be ineffective in treating myoclonic seizures. Ethosuximide is the preferred anti-epileptic in the management of absence seizures.

The BNF does not recommend using levetiracetam in atonic seizures. Current evidence in the literature shows a mixed response to levetiracetam in atonic seizures, making it a poor first-line choice compared to lamotrigine.

Sodium valproate is recommended as the first-line anti-epileptic for managing atonic seizures in male patients by the BNF. The patient in the vignette is a female (of childbearing potential), so she should not be offered sodium valproate as it is teratogenic.

Question:

A 27-year-old man presents to his general practitioner complaining of persistent watery diarrhoea. The symptoms started five days ago, accompanied by a low-grade fever and abdominal cramps.

He returned from Malta a week ago, where he ate uncooked seafood and had unprotected sexual intercourse multiple times. Everyone else around him is feeling well. He has a past medical history of HIV and asthma.

The doctor orders stool microscopy with a Ziehl-Neelsen stain which reveals protozoa.

What is the most likely causative organism?

A.Campylobacter jejuni

B.Cryptosporidium parvum

C.Entamoeba histolytica

D.Escherichia coli

E.Mycobacterium avium intracellular

Answer:Cryptosporidium parvum

Explanation:

HIV, diarrhoea, Ziehl-Neelsen stain showing protozoa → Cryptosporidium parvum

Important for meLess important

The correct answer is Cryptosporidium parvum. This patient presents with a five-day history of watery diarrhoea, a low-grade fever, and abdominal cramps. These symptoms alone would not be enough to recognise the causative organism. But the stool microscopy with Ziehl-Neelsen stain revealed protozoa, and the only protozoal organism in the list is Cryptosporidium parvum, making it the correct diagnosis. This is the most common infective cause of diarrhoea in patients with HIV. It is an intracellular protozoan and has an incubation period of 7 days.

Campylobacter jejuni is an incorrect option. It is the most common cause of food poisoning in Europe and America. It can be acquired through eating raw or undercooked poultry or eating something that touched it. It usually presents with diarrhoea which is often bloody and severe cramps. In this case, the stool microscopy with the Ziehl-Neelsen stain revealed protozoa, rather than bacteria making the answer incorrect.

Entamoeba histolytica is an incorrect option. It is the causative organism of amoebiasis, which usually presents with gradual onset bloody diarrhoea, abdominal pain and tenderness which may last for several weeks. In this case, the diarrhoea is non-bloody and the stool microscopy with Ziehl-Neelsen stain revealed protozoa, rather than amoebae making the answer incorrect.

Escherichia coli is an incorrect option. It is the most common cause of traveller's diarrhoea, which has a short incubation time and usually causes watery stools. Even if the patient has travelled recently, the stool microscopy with Ziehl-Neelsen stain revealed protozoa, rather than bacteria making the answer incorrect.

Mycobacterium avium intracellular is an incorrect option. This is a good differential here, as it is a cause of diarrhoea in patients with HIV with a low CD4 count. Typical features include fever, sweats, abdominal pain and diarrhoea, hepatomegaly and deranged LFTs. The patient in this scenario complains of persistent watery diarrhoea with low-grade fever, without any other features making it unlikely. Additionally, the Ziehl-Neelsen stain shows protozoa making this option incorrect.

Question:

A 28-year-old African man is admitted with acute severe abdominal pain. He has just flown into the UK long haul and the pain developed whilst in flight. On examination he is tender in the left upper quadrant. His blood tests are as shown.

Hb 60 g/L

Reticulocyte count 15%

Ultrasound shows a spleen with a heterogeous texture and a few small gallstones but is otherwise normal.

What is the most likely diagnosis?

A.Pancreatitis

B.Parvovirus infection

C.Sickle cell anaemia

D.Pulmonary embolism

E.Beta Thalassaemia minor

Answer:Sickle cell anaemia

Explanation:

A combination of a high reticulocyte count and severe anaemia indicates sickle cell anaemia, however, another differential can be of a transient aplastic crisis due to parvovirus. This is less likely as this causes a reticulocytopenia rather than a reticulocytosis.

Parvovirus B19 infects erythroid progenitor cells in the bone marrow and causes a temporary cessation of red blood cell production, patients who have underlying hematologic abnormalities are at risk of cessation of red blood cell production if they become infected. This can result in a transient aplastic crisis. Thus, patients with sickle cell anaemia are at risk. Typically, these patients have a viral prodrome followed by anaemia, often with haemoglobin concentrations falling below 5.0 g/dL and reticulocytosis.

Question:

A 71-year-old male attends his general practice with a 3-month history of lethargy. He has also noticed painful cracks in the corners of his mouth. He has a background of psoriasis and has a healthy balanced diet, including meat.

Blood tests are taken which show:

Hb 105 g/L (135-180)

MCV 115 fl (82-100)

Ferritin 210 ng/mL (20 - 230)

Vitamin B12 130 ng/L (200 - 900)

Folate 7.7 nmol/L (> 3.0)

Considering the most likely underlying diagnosis, which type of cancer is he at increased risk of developing?

A.Colorectal cancer

B.Gastric cancer

C.Prostate cancer

D.Small-cell lung cancer

E.Thyroid cancer

Answer:Gastric cancer

Explanation:

Pernicious anaemia predisposes to gastric carcinoma

Important for meLess important

This patient has vitamin B12 deficiency and angular cheilitis- these are two common symptoms of pernicious anaemia. A long-term complication of pernicious anaemia is the development of gastric cancer. Studies have reported a two to threefold increased risk of gastric cancer in patients with pernicious anaemia than in healthy controls. Although vitamin B 12 therapy resolves the anaemia, atrophic gastritis remains, which can progress to the development of gastric cancer.

Colorectal cancer is not known to be linked to pernicious anaemia in current literature.

Prostate cancer has not been linked to pernicious anaemia in current literature.

Small-cell lung cancer is not known to be linked to pernicious anaemia.

Thyroid cancer is not known to be more prevalent in patients with pernicious anaemia.

Question:

A 70-year-old man was referred to the gastroenterology clinic by his GP after he noticed that his eyes appear yellow and his skin always feels itchy. He denies any pain, but mentions that his appetite has reduced and he feels tired all the time. He has been a smoker since the age of 20 years old and smokes 20 cigarettes a day. Blood tests revealed the following results.

Bilirubin 32 µmol/L (3 - 17)

ALP 240 u/L (30 - 100)

ALT 40 u/L (3 - 40)

γGT 97 u/L (8 - 60)

Albumin 39 g/L (35 - 50)

What is the most likely underlying diagnosis?

A.Common bile duct gallstones

B.Hepatocellular cancer

C.Pancreatic cancer

D.Primary biliary cholangitis

E.Primary sclerosing cholangitis

Answer:Pancreatic cancer

Explanation:

Pancreatic cancer may present with cholestatic LFTs

Important for meLess important

This patient has presented with painless obstructive jaundice, which is supported the cholestatic LFT profile and pruritis. Given his presentation with lethargy and anorexia, and his significant smoking history, pancreatic cancer is the most likely diagnosis.

Common bile duct stones would give a cholestatic presentation. However it would typically be accompanied by right upper quadrant abdominal pain which is not the case in this patient.

Hepatocellular cancer can present with jaundice, anorexia and lethargy. However you would not expect the cholestatic LFT profile or cholestatic features such as pale stools if hepatocellular cancer was the cause.

Primary biliary cholangitis and primary sclerosing cholangitis would both cause a cholestatic LFT profile, lethargy and pruritis. However the feature of anorexia along with his significant smoking history make pancreatic cancer a more likely diagnosis.

Question:

A 50-year-old woman presents to her GP with persistent abdominal pain and changes to her bowel habit. She has had no blood in her stool, weight loss or change in appetite. On further questioning she admits to having a low mood for several months now. She has a past medical history of renal calculi. Other than paracetamol when she needs it, she takes no medications.

What change are you most likely to see on her ECG?

A.Long PR interval

B.Long QT interval

C.ST depression

D.Short QT interval

E.Tented T-waves

Answer:Short QT interval

Explanation:

The main ECG abnormality seen with hypercalcaemia is shortening of the QT interval

Important for meLess important

This woman is presenting with symptoms suggestive of hypercalcaemia. This can have a variety of causes including primary and tertiary hyperparathyroidism, sarcoidosis and multiple myeloma. The main ECG abnormality seen with hypercalcaemia is shortening of the QT interval.

The other options are not ECG changes associated with hypercalcaemia.

Prolongation of the PR interval and tented T-waves are associated with hyperkalaemia.

QT prolongation is seen in hypokalaemia and as a side effect of many medications such as antipsychotics, macrolide antibiotics and tricyclic antidepressants.

ST depression can be a sign of ischaemia seen in non-ST elevation myocardial infarction.

Question:

A 34-year-old female with a history of type 1 diabetes presents with vomiting and abdominal pain. She reports attending a barbecue yesterday and has been vomiting since this morning. As she has not been eating she has omitted her usual insulin today. A primary survey is undertaken and investigations are requested. An arterial blood gas shows:

pH 7.28

pCO2 5 kPa

pO2 15 kPa

Bicarbonate 13 kPa

K+ 4.2 mmol/l

Urinalysis shows:

Blood -

Leukocytes -

Nitrites -

Ketones +++

Her blood glucose is found to be 24 mmol/mol.

How should this patient be managed in the first instance?

A.10ml 10% Calcium gluconate IV over 5 minutes

B.1L 0.9% sodium chloride IV over one hour

C.IV insulin 0.1units/kg/hour

D.5 units short-acting insulin (Actrapid) IV STAT

E.IV insulin 1 unit/kg/hour

Answer:1L 0.9% sodium chloride IV over one hour

Explanation:

This patient is in diabetic ketoacidosis (DKA) as indicated by the hyperglycaemia, acidosis and ketosis. These patients are profoundly dehydrated and IV fluids are the most important initial treatment.

Calcium gluconate is used to stabilise the myocardium in hyperkalaemia.

A fixed rate insulin infusion of 0.1 units/kg/hour should be initiated in DKA, but fluids replacement takes priority and should be initiated first.

Short-acting insulin is used to treat simple hyperglycaemia.

Question:

A 50-year-old woman presents to the emergency department of her local hospital with sudden onset chest pain and shortness of breath. Primary survey is undertaken and she is found to be haemodynamically stable. Initial history and examination is suspicious for a pulmonary embolism as a potential diagnosis. A 2-level PE Wells score is 3 and D-dimer is negative.

What is the next step in management?

A.Arrange an ultrasound of the lower limb

B.Commence apixaban

C.Consider an alternate diagnosis

D.Order a CTPA

E.Repeat D-dimer in 4 hours

Answer:Consider an alternate diagnosis

Explanation:

Investigating suspected PE: if 2-level PE Wells score is ≤ 4 and D-dimer is negative then stop anticoagulation and consider alternative diagnosis

Important for meLess important

A Wells score ≤4 and a negative D-dimer suggests that an alternate diagnosis needs to be explored.

As a PE is unlikely at this stage, it is unlikely a DVT will be revealed on an ultrasound. Therefore an ultrasound will not be of any benefit.

Apixaban is an appropriate treatments in patients with a high index of suspicion for PE, however that is not the case in this patient.

Given the low D-dimer a PE is unlikely, and therefore a CTPA is not necessary at this stage.

A repeat D-dimer has no utility and should not be done.

Question:

A 5-year-old boy has diffuse lower limb bone pain and tenderness. His past medical history and family history are mostly unknown, however, he is known to have been malnourished and is currently under the care of social services.

On examination, he is malnourished and pale, there is bossing of his forehead, bowing of his legs, and prominent kyphoscoliosis of his spine. When walking, he has a waddling gait. A growth chart is plotted and his weight is below the 2nd centile.

Given the likely diagnosis, what radiological feature may be seen?

A.Ballooning

B.Joint space narrowing

C.Joint widening

D.Osteolysis

E.Periarticular erosions

Answer:Joint widening

Explanation:

Rickets can present as widening of the wrist joints due to an excess of non-mineralized osteoid at the growth plate

Important for meLess important

Joint widening is correct. The patient has signs and symptoms consistent with rickets characterised by their forehead bossing, bowing of the legs and waddling gait, bone pain, and kyphoscoliosis of the spine. They are also malnourished and pale which can indicate that cause may be a dietary deficiency of vitamin D. This leads to inadequate mineralisation of developing bones leading to a widening of the joints due to an excess of non-mineralised osteoid at the growth plate.

Ballooning is incorrect. This is a type of cortical bone destruction affecting the inner bone cortex with new bone formation outside the cortex leading to an expansile, balloon-like appearance of the bone. This is associated with bone malignancies and is not seen in rickets.

Joint space narrowing is incorrect. This is associated with osteoarthritis and rheumatoid arthritis, either due to joint overuse or inflammation leading to a reduction in the cartilage lining the bones. These diagnoses would not explain the bone pain, forehead bossing, bowing of the legs, and waddling gait. This feature is not seen in rickets.

Osteolysis is incorrect. Dysfunctional bone remodelling can occur when osteoclast activity outweighs osteoblast activity leading to excessive bone breakdown, and this leads to osteolysis. This is associated with Paget's disease of the bone, which would typically present with long bone pain in elderly patients.

Periarticular erosions is incorrect. These are seen in rheumatoid arthritis, where there is excessive bone resorption and inadequate bone formation around the affected joints. This would present with joint pain and stiffness that is worse in the morning and improves throughout the day. They are not seen in rickets.

Question:

A 32-year-old woman is reviewed at 3 days post-partum on the postnatal ward. She had an uncomplicated, elective lower-segment caesarean section. This was her first child and she is keen to exclusively breastfeed. Her lochia is normal and she is mobilising to the bathroom independently. She is to be discharged later that day and is keen to start contraception immediately. At different points in time before her pregnancy, she reports using the combined oral contraceptive pill and an intrauterine device, both of which suited her.

What should she be offered?

A.Combined-oral contraceptive pill to start immediately

B.Either of her previous contraceptions upon leaving hospital

C.Intrauterine device fitting in hospital before she is discharged

D.Progesterone-only pill to start immediately

E.She cannot start any contraception if she wishes to breastfeed

Answer:Progesterone-only pill to start immediately

Explanation:

Postpartum women (breastfeeding and non-breastfeeding) can start the progestogen-only pill at any time postpartum

Important for meLess important

This patient is 2 days postpartum and is, therefore, only recommended to have the progesterone only pill. The progesterone-only pill does not contain oestrogen and is, therefore, less likely to suppress milk production than the combined oral contraceptive pill. Furthermore, as it does not contain oestrogen, it does not increase the risk of venous thromboembolism as post-partum women are in a hypercoagulable state until 21-28 days post-partum.

It would be incorrect to prescribe the combined oral contraceptive pill immediately as post-partum women are in a pro-thrombotic state due to ongoing pregnancy-induced hypercoagulability and reduced mobility. As such, this should be avoided until 21 days post-partum. Furthermore, the combined oral contraceptive pill is more commonly associated with reduced breast milk production which may be problematic if the mother intends to exclusively breastfeed the infant.

As highlighted above, the patient cannot be started on either of her previous contraceptions at this point.

While an intrauterine device can be fitted during a caesarean section (ideally within 10 minutes of the passage of the placenta), once the wound is closed it is advised to wait 4-6 weeks post-partum before having it inserted vaginally.

While contraception may reduce the volume of breast milk produced, it is incorrect to inform the patient that she cannot start any contraception if she wishes to breastfeed as the progesterone-only pill has been shown to have minimal effect on altering the volume of milk production in breastfeeding women.

Question:

A 36-year-old woman who used to inject heroin has recently been diagnosed HIV positive. She is offered a cervical smear during one of her first visits to the HIV clinic. How should she be followed-up as part of the cervical screening program?

A.Attend colposcopy annually

B.6 monthly cervical cytology

C.Cervical cytology every three years (normal screening program)

D.Annual cervical cytology

E.Attend colposcopy every three years

Answer:Annual cervical cytology

Explanation:

Women who are HIV positive are at an increased risk of cervical intra-epithelial neoplasia (CIN) and cervical cancer due to a decreased immune response and decreased clearance of the human papilloma virus. (1) HIV positive women who have low-grade lesions (CIN1) do not clear these lesions and these can progress to high-grade CIN or cervical cancer. Even those women who are effectively treated with antiretrovirals have a high risk of abnormal cytology and an increased risk of false-negative cytology. (1)

Women with HIV should be offered cervical cytology at diagnosis.. Cervical cytology should then be offered annually for screening.

1. NICE Clinical Knowledge Summaries. [Internet]. Cervical screening. 2015. http://cks.nice.org.uk/cervical-screening (accessed March 2016).

Question:

A 57-year-old male is referred to the cardiology clinic with mild dyspnoea. He has a background medical history of hypertension, hypercholesterolemia, type two diabetes mellitus, and he has recently been diagnosed with a metastatic carcinoid tumour.

On examination, he has a harsh mid-ejection systolic murmur that is loudest on inspiration.

What is the most likely diagnosis?

A.Aortic regurgitation

B.Aortic stenosis

C.Mitral stenosis

D.Pulmonary stenosis

E.Tricuspid regurgitation

Answer:Pulmonary stenosis

Explanation:

Pulmonary stenosis is louder on inspiration

Important for meLess important

Pulmonary stenosis is the correct answer. Pulmonary stenosis causes a harsh mid-ejection systolic murmur in the second intercostal space on the left sternal edge. It is loudest on inspiration. Additionally, it is associated with carcinoid heart disease (Hedinger syndrome).

Aortic regurgitation is an incorrect answer. Aortic regurgitation is inconsistent with the scenario above as it is not an ejection systolic murmur. Aortic regurgitation is a decrescendo early-diastolic blowing murmur. It is best heard in the third and fourth intercostal space on the left lower sternal border. It is loudest at end-expiration with the patient sitting up and leaning forward.

Aortic stenosis is an incorrect answer. Aortic stenosis causes a harsh crescendo – decrescendo ejection systolic murmur in the second intercostal space on the right sternal edge. However, it is louder on expiration as thus inconsistent with the scenario above.

Mitral stenosis is an incorrect answer. Mitral stenosis is inconsistent with the scenario above as it is not an ejection systolic murmur. Mitral stenosis is a low pitch, rumbling in character, diastolic murmur which is best heard at the apex with the patient in the left lateral decubitus position. It is associated with rheumatic fever.

Tricuspid regurgitation is an incorrect answer. Tricuspid regurgitation is inconsistent with the scenario above as it is not an ejection systolic murmur. It is a high pitched, pansystolic murmur that is best heard at the left lower sternal border.

Question:

A 32-year-old man visits his GP, troubled by some thoughts he is having. For several weeks now, he has been having thoughts of needing to repeatedly check that his front door is locked when leaving the house, despite knowing he locked it. He occasionally feels a need to physically check the front door, but more often than not, it is just thoughts.

He denies low mood or any delusions/hallucinations. He is otherwise physically well and has no past medical history, nor family history. He does not take any regular medication.

Given the likely diagnosis, which of the following is recommended first-line?

A.Clomipramine

B.Exposure and response prevention

C.Eye movement desensitisation and reprocessing

D.Routine referral to psychiatry

E.Sertraline

Answer:Exposure and response prevention

Explanation:

Exposure and response prevention involves exposing a patient with OCD to an anxiety provoking situation (e.g. having dirty hands)

Important for meLess important

The diagnosis here is that of obsessive-compulsive disorder (OCD), given the clear history. This scenario presents mildly - the patient is having obsessive thoughts but rarely having a compulsion to act on them. The correct answer is therefore exposure and response prevention (ERP) therapy. ERP is where a patient is exposed to their trigger (e.g. seeing a locked door) and then is prevented from engaging in their usual compulsive behaviour (repeatedly checking the door), to break the habit.

Sertraline is incorrect - if the patient had previously not responded to ERP, or the response was inadequate, he would be treated as having moderate OCD, for which selective serotonin reuptake inhibitors (SSRIs) such as sertraline would be appropriate.

Clomipramine is incorrect - this is recommended for moderate impairment second-line to SSRIs, if the patient has not tolerated SSRIs, or the patient prefers clomipramine.

Eye movement desensitisation and reprocessing is incorrect - this is a form of therapy used in the management of post-traumatic stress disorder. The patient focuses their memory on the problem and the therapist simultaneously asks the patient to use their eyes to follow the therapist's finger. This is not routinely used for OCD.

Interpersonal therapy is incorrect - this can be used in the management of depression. This therapy focuses specifically on helping people with depression to address problems in their relationships with others. This would not be of benefit in OCD.

Psychodynamic psychotherapy is incorrect - this is used for a variety of conditions, including depression, but does not routinely play a role in the management of OCD.

A referral to psychiatry is incorrect at this stage - ERP should be tried first. A selective serotonin reuptake inhibitor may also be tried. If these methods fail, then a referral to secondary care may be warranted.

Question:

A 3-year-old boy is brought to surgery. His mum reports that he has been complaining of a sore left ear for the past 2-3 weeks. This morning she noticed some 'green gunge' on his pillow. On examination his temperature is 37.8ºC. Otoscopy of the right ear is normal. On the left side the tympanic membrane cannot be visualised as the ear canal is full with a yellow-green discharge. What is the most appropriate action?

A.Review in 2 weeks

B.Admit to paediatrics

C.Advise olive oil drops followed by ear syringing

D.Urgent referral to ENT

E.Amoxicillin + review in 2 weeks

Answer:Amoxicillin + review in 2 weeks

Explanation:

This boy is likely to have had an acute otitis media with perforation.

Question:

A 28-year-old man undergoes an ileocaecal resection and end ileostomy for Crohn's disease. One year later he presents with a deep painful ulcer at his stoma site. What is the most likely diagnosis?

A.Bullous pemphigoid

B.Pemphigus vulgaris

C.Pyoderma gangrenosum

D.Squamous cell carcinoma

E.Poorly fitting appliance

Answer:Pyoderma gangrenosum

Explanation:

Pyoderma gangrenosum is associated with inflammatory bowel disease (this patient had a stoma for Crohn's). It is commonly found on lower limbs and described as being painful, the size of an insect bite and growing. It looks like a Margherita pizza (with a red base and yellow topping) Treatment involves steroids.

It would be rare for a poorly fitting appliance to cause a deep painful ulcer.

Question:

A 32-year-old woman presents to her GP with abdominal pain and bleeding for 3 days. A pregnancy test is performed which is positive. She is referred urgently to the emergency department where an ultrasound scan is performed, confirming a right-sided tubal ectopic pregnancy with a visible heartbeat.

She has had one previous ectopic pregnancy managed with a left-sided salpingectomy, she has no children but wants to have a family sometime in the future. There is no history of any sexually transmitted infections.

What is the most appropriate management?

A.Expectant management

B.Methotrexate

C.Misoprostol

D.Salpingectomy

E.Salpingotomy

Answer:Salpingotomy

Explanation:

Ectopic pregnancy requiring surgical management: Salpingotomy (rather than salpingectomy) should be considered for women with risk factors for infertility such as contralateral tube damage

Important for meLess important

Salpingotomy is correct. This woman has an ectopic pregnancy requiring surgical management due to pain and a visible foetal heartbeat. Salpingotomy is the most appropriate management because she has had a previous contralateral salpingectomy, so this would give her the best chance of preserving her fertility and starting a family in the future.

Expectant management is incorrect. This would be inappropriate as she is symptomatic and has a foetal heartbeat and is therefore at risk of ectopic rupturing, which could be life-threatening. This patient requires surgical management with salpingotomy given her history of contralateral tube damage.

Methotrexate is incorrect. This would be appropriate for ectopic pregnancies which are suitable for medical management. Medical management is not appropriate in this case, because of the presence of pain and a visible foetal heartbeat.

Misoprostol is incorrect. This is used for the management of incomplete miscarriages. She is not having an incomplete miscarriage, as there is a foetal heartbeat visible.

Salpingectomy is incorrect. This is used if surgical management is indicated and the woman has no other risk factors for infertility such as a previous PID or contralateral tubal surgery. However, in this scenario, the patient had one previous ectopic pregnancy managed with a left-sided salpingectomy, which is a risk factor for infertility. Salpingotomy is therefore the best option for management to provide the best chance of preserving fertility.

Question:

A 75-year-old male presents to the acute medical unit with dyspnoea. He has a past medical history of chronic obstructive pulmonary disorder (COPD). On examination the patient has an SpO2 = 85%, blood pressure 100/65 mmHg, temperature = 38.6 C and widespread bilateral expiratory wheeze on auscultation. An arterial blood gas (ABG) sample reveals:

pO2 6.8 kPa

pCO2 7.8 kPa

pH 7.31

HCO3- 44 mmol/l

How would you describe the acid-base balance?

A.Acute respiratory acidosis

B.Mixed metabolic acidosis and respiratory acidosis

C.Acute on chronic respiratory acidosis

D.Mixed metabolic alkalosis and respiratory alkalosis

E.Metabolic acidosis with partial respiratory compensation

Answer:Acute on chronic respiratory acidosis

Explanation:

The pH is low confirming acidaemia. The pCO2 is high confirming a respiratory acidosis. The HCO3- is high confirming a partially compensating metabolic alkalosis. Since metabolic compensation takes time to occur, the very high level of bicarbonate is suggestive of a chronic respiratory acidosis, most likely due to the patients COPD.

Question:

A 23-year-old woman with a history of systemic lupus erythematosus (SLE) presents to the GP feeling generally unwell with myalgia and fatigue. She is concerned she is having a flare-up of her SLE. She has health-anxiety secondary to her SLE and regularly attends her GP practice whenever she develops new symptoms, as she is aware that her lupus can affect multiple organs and systems. The GP takes some blood tests which show the following:

Hb 111 g/L Male: (135-180)

Female: (115 - 160)

MCV 86 fl (84 - 96)

WBC 12.3 \* 109/L (4.0 - 11.0)

Urea 6.7 mmol/L (2.0 - 7.0)

Creatinine 118 µmol/L (55 - 120)

eGFR 90 ml/min/1.73m² (>/= 90)

CRP 88 mg/L (< 5)

ESR 34 mm/hr (0 - 20)

What is the most likely cause of this patient's symptoms?

A.Acute Kidney Injury (AKI)

B.Anaemia

C.Fibromyalgia

D.Flare of her SLE

E.Underlying infection

Answer:Underlying infection

Explanation:

A raised CRP in a patient with known SLE may indicate an underlying infection

Important for meLess important

This patient does not have an AKI, her urea and creatinine are within the normal range. Systemic lupus erythematosus (SLE) can cause glomerulonephritis which can cause a rapid deterioration in renal function but this patient's kidneys are currently working well.

This patient has a slight normocytic anaemia. However, this is probably not low enough to cause her symptoms of fatigue and would not explain the myalgia and general malaise. This is likely anaemia of chronic disease or drug-induced anaemia as a result of her medication.

Fibromyalgia is common in SLE as patients often have anxiety and depression related to their diagnosis as well as chronic arthralgia. However, this patient has a raised CRP which would not be explained by fibromyalgia.

The presence of a raised white cell count and raised CRP suggests that there is an underlying infection and this is not merely a flare of her lupus symptoms.

Underlying infection is the most likely cause of her symptoms. Normally in SLE, a patient's ESR will be raised but CRP will be normal. Her raised CRP, rise in white cells, and generalised myalgia and malaise is suggestive of an underlying infection.

Question:

A 39-year-old woman at 39 weeks gestation in the labour suite is having a cardiotocography (CTG) review.

Her waters broke 8 hours ago and she has been in labour for 4 hours. This is her second pregnancy, with her previous being delivered by normal vaginal delivery. This pregnancy has been uncomplicated so far. Her Bishop score is 7.

Her CTG findings are shown below:

Foetal heart rate 102 bpm (110 - 160)

Variability 16 bpm (5 - 25)

Decelerations Variable, with 30% of contractions absent

Contractions 4 per 10 minutes (3 - 4)

These findings have been consistent for 20 minutes.

What is the most appropriate management?

A.Commence syntocinon infusion

B.Increase frequency of CTG checks

C.Initiate tocolysis and offer a category 3 caesarean section

D.Perform foetal blood sampling

E.Prepare for category 2 caesarean section

Answer:Prepare for category 2 caesarean section

Explanation:

Category 2 caesarean sections are for maternal or fetal compromise that are not immediately life-threatening

Important for meLess important

This woman's CTG findings are non-reassuring. Persistent foetal bradycardia of between 100-110 bpm represents non-reassuring findings, whereas under 100 bpm represents abnormal findings. The presence of variable decelerations, in under 50% of contractions, is also a non-reassuring finding, whereas variable decelerations in over 50% of contractions, or a prolonged deceleration would be an abnormal finding.

The management of non-reassuring CTG findings, which are persistent in nature, is to prepare for category 2 caesarean section. This category of caesarean is for a maternal or foetal compromise that is not immediately life-threatening. Examples of maternal compromise include minimal abruption or antepartum haemorrhage, failure to progress, maternal exhaustion or maternal request. Examples of foetal compromise include undiagnosed breech or non-reassuring CTG findings - abnormal CTG findings are indications for a category 1 caesarean section.

Commence syntocinon infusion is incorrect. There is no evidence that augmenting contractions would be beneficial. She is contracting at the appropriate rate, and it appears the labour is progressing well.

Increase frequency of CTG checks is incorrect. Whilst this will likely be done in any non-reassuring or abnormal CTG, it is not the single best action, as the definitive action needed is to plan delivery.

Initiate tocolysis and offer a category 3 caesarean section is incorrect. Tocolysis should not be performed at this stage of active labour - tocolytics are used in preterm labour. Additionally, a category 3 caesarean section does not resolve this issue quick enough - there is foetal compromise present and therefore this must be dealt with urgently.

Perform foetal blood sampling is incorrect. Foetal blood sampling is indicated for abnormal CTG findings, to determine the health of the foetus - it is not routinely performed for non-reassuring CTG findings.

Question:

A 29-year-old woman presents to the GP complaining of being tired for several months. She occasionally gets headaches and neck tenderness and feels light-headed. She has noticed that she does not perform as well as she used to when exercising and that her arms and legs feel fatigued even when doing daily activities. She especially notices pain in her arms when cooking.

On examination, her heart rate is 82 bpm, BP is 129/56 mmHg, and oxygen sats are 98%. Her left radial pulse is weak and difficult to find on the right. An early diastolic murmur is heard on the left sternal border.

What is the most likely diagnosis?

A.Aortic regurgitation

B.Eosinophilic granulomatosis with polyangiitis

C.Polymyalgia rheumatica

D.Takayasu’s arteritis

E.Temporal arteritis

Answer:Takayasu’s arteritis

Explanation:

Intermittent limb claudication, absent or weak peripheral pulses in a young woman, → ?Takayasu's arteritis

Important for meLess important

Takayasu’s arteritis is correct. This is a large-vessel vasculitis. It is the most likely diagnosis considering the patient’s age and features of malaise, headache, carotid tenderness, weak pulses and limb claudication on exercise. It is also associated with aortic regurgitation, which could explain the murmur heard and the wide pulse pressure on examination.

Aortic regurgitation is incorrect. Although the patient here may have aortic regurgitation, it does not explain the rest of her symptoms and therefore is unlikely as a stand-alone diagnosis. It is also unlikely for a young woman to have aortic regurgitation in isolation, and it typically presents later in life.

Eosinophilic granulomatosis with polyangiitis is incorrect. This is also known as Churg-Strauss syndrome. It is an ANCA-associated small-medium vessel vasculitis. It typically demonstrates vasculitis features but is associated with asthma/dyspnoea, sinusitis and eosinophilia. It is not associated with limb claudication or aortic regurgitation; therefore, it is unlikely.

Polymyalgia rheumatica is incorrect. This is an inflammatory disorder marked by proximal muscle pain but not weakness. It may be associated with temporal arteritis. However, it is commonly seen in older women. Therefore, this diagnosis is unlikely.

Temporal arteritis is incorrect. This is also a large-vessel vasculitis. However, it typically presents with features of temporal headaches/tenderness, weak/absent temporal pulses, jaw claudication and visual impairment. It also usually presents in women above the age of 60.

Question:

A 65-year-old man attends his annual diabetes retinal screening. He has not experienced any changes in his vision or any other visual symptoms.

He has had diabetes for 3 years and also has hypertension.

His fundoscopy shows:

What is the most likely diagnosis?

A.Diabetic maculopathy

B.Diabetic retinopathy treated with pan-retinal photocoagulation

C.Hypertensive retinopathy

D.Pre-proliferative diabetic retinopathy

E.Proliferative diabetic retinopathy

Answer:Pre-proliferative diabetic retinopathy

Explanation:

Pre-proliferative diabetic retinopathy is the correct answer. Patients with diabetes can develop retinopathy at any time however it is usually seen 3-5 years after they have had the condition. It can present asymptomatically on annual retinal screening. Impaired glycaemic control and hyperglycaemia can result in increased retinal blood flow and abnormal metabolism within the retinal vessels resulting in damage to the endothelial and pericytes

The fundoscopy above shows evidence of pre-proliferative diabetic retinopathy. The optic disc is on the right side, usually on the nasal side of the patient, hence this is the patient's right eye. There is evidence of hard exudates and cotton wool spots - indicating areas of retinal infarction, towards the left side of the fundoscopy picture. Overall he has evidence of moderate non-proliferative diabetic retinopathy due to the presence of cotton wool spots and hard exudates.

Diabetic maculopathy is incorrect. The macula is not visible on this patient's fundoscopy therefore we are unable to see if this patient has diabetic maculopathy. However, patients with this usually present with worsening visual acuity and blurring due to central vision being affected directly.

Diabetic retinopathy treated with pan-retinal photocoagulation is incorrect. There is not any evidence of any laser treatment on this image.

Hypertensive retinopathy is incorrect. Although this may be seen given he also suffers from hypertension, there is no evidence of vascular changes such as arteriolar narrowing, tortuosity as well as arteriovenous nipping. Due to this, the presence of the cotton wool spots and blot haemorrhages is more likely due to diabetic retinopathy as it would be unlikely for changes consistent with stage 3 hypertensive retinopathy to be possible with evidence of stage 1 or 2.

Proliferative diabetic retinopathy is incorrect. This would show the presence of new vessels originating around the optic disc that is much thinner and smaller than the existing vessels. There may also be evidence of vitreous haemorrhage due to the rupture of these weaker vessels arising due to neovascularization. This is more common in type 1 diabetes.

Question:

A 57-year-old man presents to the GP with sudden-onset dizziness which has now lasted for 2 days. He is also experiencing nausea and vomiting and nothing has seemed to relieve the dizziness so far. On further questioning, he does mention feeling unwell with a cold last week. He denies any changes to his hearing. On examination, you note horizontal nystagmus.

He has a past medical history of type 2 diabetes mellitus and hypercholesterolemia and takes metformin, empagliflozin, and atorvastatin.

What test could be used to rule out a more concerning underlying diagnosis?

A.Audiometry

B.Brandt-Daroff manoeuvre

C.Dix-Hallpike manoeuvre

D.Epley manoeuvre

E.HiNTs exam

Answer:HiNTs exam

Explanation:

The HiNTs exam can be used to distinguish vestibular neuronitis from posterior circulation stroke

Important for meLess important

HiNTs exam is correct. This patient has presented with features typical of vestibular neuronitis which is a peripheral cause of vertigo. Other peripheral causes include BPPV, Meniere's disease and labyrinthitis. Central causes of vertigo include posterior circulation stroke which can present very similarly and is essential to rule out, especially in older patients with risk factors. The HiNTS exam helps to differentiate between a peripheral and central cause of vertigo.

The HiNTS exam is composed of 3 tests which include the head impulse test, the test of skew and assessing nystagmus. Peripheral vertigo will display an abnormal head impulse test, either no nystagmus or unidirectional nystagmus and no vertical skew. Central vertigo will have a normal head impulse test, vertical or saccadic nystagmus and will display a vertical skew.

Audiometry is incorrect. This patient has not reported any changes to his hearing, which would warrant audiometry testing. Audiometry for vertigo alone has very little use.

Brandt-Daroff manoeuvre is incorrect. This is an exercise used for patients with benign positional paroxysmal vertigo (BPPV) to try at home to relieve symptoms and has no diagnostic purpose. BPPV is typically seen in older patients and symptoms occur over a couple of seconds in episodes usually triggered by turning the head in a certain direction (e.g. rolling over in bed).

Dix-Hallpike manoeuvre is incorrect. This is a diagnostic test specifically for benign positional paroxysmal vertigo (BPPV) rather than to distinguish between peripheral and central causes of vertigo. This patient does not have BPPV as their symptoms are more constant. BPPV is typically seen in older patients and symptoms occur over a couple of seconds in episodes usually triggered by turning the head in a certain direction (e.g. rolling over in bed).

Epley manoeuvre is incorrect. This is a management option for people with confirmed BPPV so would not be useful in this scenario. This patient does not have BPPV as their symptoms are more constant. BPPV is typically seen in older patients and symptoms occur over a couple of seconds in episodes usually triggered by turning the head in a certain direction (e.g. rolling over in bed).

Question:

You are called to review a 55-year-old lady with a history of bipolar disorder who is being treated with lithium therapy. She appears agitated and confused. The nurse informs you that she has taken a large dose of lithium. Her blood results demonstrate a rapid decline in renal function. You prescribe fluids as part of your initial management.

What is the most appropriate further management?

A.Continue IV fluids

B.Activated oral charcoal

C.Furosemide

D.Haemodialysis

E.Lactulose

Answer:Haemodialysis

Explanation:

Severe lithium toxicity is an indication for haemodialysis

Important for meLess important

This patient is presenting with what appears to be acute lithium toxicity, which has progressed to renal impairment. There is also evidence of neurological involvement indicating severe toxicity. Initial management would include supportive measures such as fluid resuscitation. Dialysis is indicated in severe lithium toxicity as a method of clearance. Lactulose and activated oral charcoal have no role in the treatment of lithium toxicity.

Question:

A 25-year-old man presents with severe recent-onset headaches. These have been occurring twice daily and last at least 30 minutes each time. He describes stabbing pain on one side of the face and describes it being the worst pain in his life. It is also associated with lacrimation and nasal discharge.

Given the likely diagnosis, what is the most appropriate option for long-term prophylaxis?

A.Carbamazepine

B.Indomethacin

C.Oxygen therapy

D.Sumatriptan

E.Verapamil

Answer:Verapamil

Explanation:

Verapamil is used for long-term prophylaxis of cluster headaches

Important for meLess important

This patient is likely to have cluster headaches and the most appropriate prophylaxis amongst the options given is verapamil in this case. This should be confirmed with a neurologist assessment.

Carbamazepine is an anticonvulsant which can be used in cases of trigeminal neuralgia. It is not recommended in cluster headaches.

Indomethacin is a non-steroidal anti-inflammatory that can be used in paroxysmal hemicrania. It could be trialled after neurologist assessment but is not the most correct answer in this situation.

Oxygen therapy is an acute treatment option for cluster headaches and does not have a significant role in prophylaxis.

Sumatriptan is also an acute treatment option for cluster headaches and its role in prophylaxis is not established.

Question:

An 80-year-old male presents with sudden onset weakness of his left arm and leg. On examination you note left sided arm and leg weakness. There is no evidence of higher function deficits or visual field defects. You suspect a stroke and send him for an urgent CT.

What is the best description of this stroke?

A.Left sided partial anterior circulation syndrome

B.Posterior circulation stroke syndrome

C.Left sided total anterior circulation syndrome

D.Right sided total anterior circulation syndrome

E.Lacunar stroke

Answer:Lacunar stroke

Explanation:

Lacunar stroke is a type of stroke that results from occlusion of one of the penetrating arteries that provides blood to the brain's deep structures. Lacunar strokes most commonly present as a pure motor hemiparesis, pure sensory stroke, sensorimotor stroke, ataxic hemiparesis or dysarthria/clumsy hand syndrome.

Question:

Mark is a 46-year-old man who came to see you last month with a 6 week history of upper abdominal pain, heartburn and occasional reflux. There were no worrying symptoms in his history and you agreed on a plan for a 1 month trial of omeprazole 20mg daily.

Mark comes to see you for a follow-up appointment after completing a month of omeprazole. His symptoms have only slightly improved and they are still troubling him.

What is the most appropriate management plan?

A.Refer for routine upper gastrointestinal endoscopy

B.Double the dose of omeprazole and continue for 1 month

C.Switch to esomeprazole and continue for 1 month

D.Test for Helicobacter pylori infection in 2 weeks and treat if positive

E.Continue the current dose of omeprazole for a further 4 weeks

Answer:Test for Helicobacter pylori infection in 2 weeks and treat if positive

Explanation:

When treating dyspepsia, if either a PPI or 'test and treat' approach has failed then the other approach should be tried next

Important for meLess important

NICE guidelines state:

'Offer one of the following strategies to manage uninvestigated dyspepsia symptoms, depending on clinical judgement:

Prescribe a full-dose proton pump inhibitor (PPI) for 1 month

Test for Helicobacter pylori infection if the person's status is not known or uncertain. If the person tests positive for H. pylori infection, prescribe first-line eradication therapy.

If symptoms persist or recur following initial management, switch to the alternative strategy (for example, offer a full-dose PPI for 1 month if the person has been tested for H. pylori infection and vice versa).'

Therefore continuing omeprazole, doubling the dose or switching to esomeprazole are incorrect answers as Mark has completed 1 month of a full-dose PPI and therefore NICE suggests to switch to the alternative strategy which is testing for H. pylori infection. As Mark has been taking a PPI, he must wait 2 weeks during which he is not taking a PPI before being tested to ensure the result is accurate.

Referral for routine upper gastrointestinal endoscopy is an incorrect answer as at this stage, there is no clinical indication for upper GI endoscopy. Mark has no red flag symptoms and NICE suggests referral for endoscopy is warranted if there are refractory or recurrent symptoms despite optimal management in primary care.

Question:

A 71-year-old man presents to his general practitioner complaining of frequency and dribbling when urinating. He goes to the toilet six times per hour. Additionally, he wakes up at night multiple times to urinate. He has a past medical history of hypertension and benign prostatic hyperplasia, for which he takes finasteride and tamsulosin.

On PR examination, an enlarged, symmetrical, firm and non-tender prostate can be noticed. He denies any loss of weight, fever or change in appetite. His International Prostate Symptom Score is 20.

What is the correct management plan?

A.Add alfuzosin

B.Add sildenafil

C.Add tolterodine

D.Stop tamsulosin and start alfuzosin

E.Stop tamsulosin and start darifenacin

Answer:Add tolterodine

Explanation:

Antimuscarinic drugs are useful in patients with an overactive bladder

Important for meLess important

The correct answer is to add tolterodine. This patient is presenting with both voiding (dribbling) and storage (frequency and nocturia) symptoms on the background of known benign prostatic hyperplasia. These symptoms fall in the category of an overactive bladder, most commonly caused in men by benign prostatic hyperplasia. The NICE guidelines suggest adding antimuscarinic agents to the management plan of patients with an overactive bladder in which mixed symptoms of voiding and storage are not responding to an alpha-blocker (tamsulosin), as in this case.

Adding alfuzosin is incorrect as this patient has already been prescribed an alpha-blocker (tamsulosin), hence it would be inappropriate to add the same type of drug.

Adding sildenafil would be inappropriate as this is a medication to treat erectile dysfunction, rather than benign prostatic hyperplasia.

Stop tamsulosin and start alfuzosin is an inappropriate choice as the NICE guidelines suggest adding an antimuscarinic, rather than changing the alpha-blocker.

Stop tamsulosin and start darifenacin is an inappropriate choice as the NICE guidelines suggest adding an antimuscarinic to the current plan rather than removing the previously used drug.

Question:

A 30-year-old man with known ulcerative colitis presents to his GP with a flare-up of his condition. For the last five weeks, he has had 4-5 bowel movements daily with small amounts of blood visible. He has a pulse rate of 80bpm and a temperature of 36.8ºC. His blood results are as follows:

ESR 28 mm/hr Men: < (age / 2)

Hb 140 g/L Male: (135-180)

Platelets 345 \* 109/L (150 - 400)

WBC 10.2 \* 109/L (4.0 - 11.0)

Four weeks ago, he was prescribed rectal sulfasalazine, but his symptoms have not improved.

What is the next best step in management?

A.IV sulfasalazine

B.Oral azathioprine

C.Oral prednisolone

D.Oral sulfasalazine

E.Rectal mesalazine

Answer:Oral sulfasalazine

Explanation:

If a mild-moderate flare of distal ulcerative colitis doesn't respond to topical (rectal) aminosalicylates then oral aminosalicylates should be added

Important for meLess important

Oral sulfasalazine is correct. According to the Truelove and Witts severity index, the patient has a moderate flare-up of ulcerative colitis as he is having 4-5 bowel movements each day with small amounts of visible blood but is not anaemic, doesn't have a fever or tachycardia and ESR is <30. Therefore, he should be given an oral aminosalicylate, such as sulfasalazine, if rectal therapies have been ineffective.

IV sulfasalazine is incorrect. Sulfasalazine should be given as the next management step but is not available in IV preparation.

Oral azathioprine is incorrect. Azathioprine is an immunosuppressant used to maintain remission in ulcerative colitis but is not indicated for the acute management of flares.

Oral prednisolone is incorrect. Oral prednisolone may be given if the flare does not respond to oral aminosalicylates but are not first-line due to its side effect profile.

Rectal mesalazine is incorrect. Mesalazine is in the same class of drugs as sulfasalazine and can be given first line in a mild-moderate flare of ulcerative colitis however this patient has already trialled a rectal 5-ASA which was ineffective so there would be no use in trying a second.

Question:

You see a 30-year-old lady for a postnatal check following an emergency caesarian section 8 weeks ago. She also has her baby booked in for his first set of routine immunisations today. She asks about the new Meningococcus B (MenB) vaccination and wants to know when it is given.

When is the routine MenB vaccine given?

A.At 2 and 4 months of age

B.At 2, 3 and 4 months of age

C.At 2, 3 and 12-13 months of age

D.At 2, 4 and 12-13 months

E.At 4 and 12-13 months of age

Answer:At 2, 4 and 12-13 months

Explanation:

The Men B vaccine is given at 2, 4 and 12-13 months.

Important for meLess important

The UK is the first country in the world to introduce a MenB vaccine into its routine vaccination schedule.

The MenB vaccine was introduced into the routine UK schedule on 1st September 2015. The vaccine is given at 2 and 4 months, with a booster at 12 months. Therefore, option 4 is the only correct answer. The MenC vaccine used to be given at 3 months but was stopped in 2016.

The MenB vaccine is also recommended for people with some long-term health conditions who are at greater risk of complications from meningococcal disease. This includes people with:

Asplenia or splenic dysfunction

Sickle cell anaemia

Coeliac disease

Complement disorders

The vaccine does not contain any live bacteria and therefore, cannot cause meningococcal disease.

Question:

A 57-year-old gentleman presented with a 3-day history of lower back pain, pain on passing urine and low-grade fevers. On examination, he had a tender, boggy prostate and diffuse lower abdominal pain. A urine dip shows 2+ of blood in the urine. What is the most appropriate treatment for the suspected diagnosis?

A.A 7 day course of co-amoxiclav

B.A 14 day course of ciprofloxacin

C.Refer to secondary care for urgent hospital admission

D.A 28 day course of ofloxacin

E.A 5 day course of trimethoprim

Answer:A 14 day course of ciprofloxacin

Explanation:

Prostatitis - quinolone for 14 days

Important for meLess important

The diagnosis here is prostatitis. A urine sample should be sent for culture and if the patient is deemed well enough to be treated in the community, they should be started on a 14-day course of a quinolone (ciprofloxacin or ofloxacin). Refer urgently to secondary care if the man is severely unwell, septic, unable to take oral antibiotics or in urinary retention.

Options 1/4/5 all contain the incorrect antibiotic or duration of time.

Option 3 suggests referring when the patient could be managed in the community.

Question:

You are called to see a 62-year-old female inpatient, with a known history of epilepsy, who is having a seizure. The nurse who witnessed the seizure says it began by affecting her right hand before involving her entire right arm and then progressing to a loss of consciousness with her entire body shaking. What is the most likely diagnosis?

A.Generalised tonic-clonic

B.Focal impaired awareness seizure

C.Jacksonian march with secondary generalisation

D.Focal aware seizure

E.Myoclonic

Answer:Jacksonian march with secondary generalisation

Explanation:

A Jacksonian march is a type of focal aware seizure.

Focal highlights how it is focal epilepsy that involves abnormal electrical activity in just one part of the brain.

It characteristically starts by affecting a peripheral body part such as a toe, finger or section of the lip and then spreads quickly 'marches' over the respective foot, hand or face.

In some with Jacksonian march seizures (as in this case), the electrical disorder spreads over larger areas of the brain, causing the seizure to develop into a tonic-clonic seizure.

Question:

A 12-year-old girl presents to your GP clinic requesting some contraception. She has had a boyfriend for 8 months who is aged 13. What is the most appropriate immediate course of action to take?

A.Explore the reasons why contraception is needed, Respect her autonomy, maintain confidentiality and give her a prescription

B.Explain that she is too young to be having sex and suggest she stop.

C.Contact the relevant safeguarding lead as this is a child protection issue.

D.Explore the reasons why contraception is needed, Respect her autonomy, maintain confidentiality but do not give her a prescription

E.Give her some contraception and ask her to discuss the consultations with her parents.

Answer:Contact the relevant safeguarding lead as this is a child protection issue.

Explanation:

A child under the age of 13 is always considered to be unable to consent for sexual intercourse. This is regardless of whether they are Gillick competent. As a result all consultations with this age group should automatically trigger child protection measures.

Giving her a prescription wouldn't adhere to this, neither was ignoring the situation. Answer 2 isn't helpful in the slightest and answer 5 is banking on the fact that the child will talk to her parents.

http://www.gmc-uk.org/sexoffencesact2.pdf48793788.pdf

http://www.gmc-uk.org/guidance/ethicalguidance/childrenguidance6469sexualactivity.asp

Question:

You are an F2 working in general practice. One of your patients has been coming to the practice regularly with no real complaint and is always requesting to see you for her consultations, in which she is very flirtatious and usually comes with no medical concerns. On the last consultation, she mentions wanting to go out for dinner with you and is very flirty and adamant that you oblige. What is the most appropriate course of action?

A.Ask the patient to see another doctor at your practice from now on

B.Discuss the reasons for which the patient is pursuing you

C.Inform the patient that you cannot go for dinner and try to re-establish a professional boundary

D.Ask the patient to stop coming to the general practice

E.Agree to dinner with the patient, as long as it is with other staff members

Answer:Inform the patient that you cannot go for dinner and try to re-establish a professional boundary

Explanation:

This question covers 'maintaining a professional boundary between you and your patient'.

In this question, option 3 is correct, as the guidelines state that 'if a patient pursues a sexual or improper emotional relationship with you, you should treat them politely and considerately and try to re-establish a professional boundary' In this case, this is possible as the relationship hasn't yet broken down where trust is concerned.

The other options are incorrect as they don't follow the guidelines, and some, such as asking the patient to stop coming to the practice may cause harm. Going for dinner is incorrect. Discussing the reasons for being pursued does nothing to rectify the situation. Asking the patient to see another GP is deferential and at this stage, trust has not been broken.

Reference: http://www.gmc-uk.org/guidance/ethicalguidance/30214.asp

Question:

A 6-year-old boy with sickle cell disease presents to the emergency department. He has been febrile for one week now and feels nauseous with a lack of appetite. Within the last day, he has been experiencing severe pain in his left leg. You initially treat this as a sickle crisis giving adequate oxygen, fluids, morphine and antibiotics. However, an X-ray was done which showed osteomyelitis of the leg.

Which of the following organisms is the likely cause of his osteomyelitis?

A.Neisseria gonorrhoeae

B.Haemophilus influenzae

C.Group A streptococcus

D.Enterococcus faecalis

E.Salmonella enteritidis

Answer:Salmonella enteritidis

Explanation:

Sickle cell patients are prone to Salmonella osteomyelitis

Important for meLess important

In the sickle cell population Salmonella is the most common cause of osteomyelitis. Otherwise Staphylococcus aureus is the most common cause in a child. The three other answers Haemophilus, Group A streptococcus and Enterococcus are all less common causes of osteomyelitis.

Question:

A 60-year-old man with a past medical history of liver cirrhosis was brought to the emergency department by ambulance with ongoing profuse frank haematemesis. He underwent initial treatment with terlipressin and antibiotic prophylaxis, along with fluid and blood resuscitation, before the bleed was controlled endoscopically. He was reviewed by gastroenterology the next day where it was decided to start him on prophylactic treatment to prevent a future episode of haematemesis.

What is the most appropriate prophylactic treatment?

A.Amoxicillin

B.Lansoprazole

C.Propranolol

D.Terlipressin

E.Transjugular intrahepatic porto-systemic shunt

Answer:Propranolol

Explanation:

A non-cardioselective B-blocker (NSBB) is used for the prophylaxis of oesophageal bleeding

Important for meLess important

This patient has had an upper gastrointestinal bleed caused by ruptured oesophageal varices. Liver cirrhosis can cause portal hypertension which leads to the development of varices. A non-cardioselective beta blocker, such as propranolol, is a medical treatment option for the prophylaxis of oesophageal bleeding and therefore this the correct answer.

Amoxicillin is used as part of triple therapy for the eradication of H. pylori. This would have a role if peptic ulcer disease was the underlying cause behind the upper GI bleed.

Lansoprazole is a proton pump inhibitor and would be used in prophylactic treatment if the cause of the upper GI bleed was due to peptic ulcer disease. However it does not have a role in the prophylaxis of oesophageal bleeding and so is not correct.

Terlipressin is vasopressin receptor 1 agonist which is used in the acute management of upper GI bleeds that are suspected to be due to oesophageal varices. However terlipressin does not have a role in prophylaxis and so is not correct.

Transjugular intrahepatic porto-systemic shunt (TIPS) is an option for prophylaxis against variceal bleeds. However TIPS is usually reserved for varices that are resistant to other prophylactic treatments such as propranolol and repeat endoscopic banding.

Question:

A 56-year-old male patient is admitted to a surgical ward the day before a routine cholecystectomy. He has a background of type 2 diabetes mellitus and hypertension. Their drug history includes metformin 500mg BD, gliclazide 120mg BD, ramipril 5mg and atorvastatin 20mg.

On the morning of the surgery, the nurse on the drug round asks the doctor on the ward whether they should administer the morning dose of gliclazide written up. His surgery is scheduled for 9 am.

What should the doctor inform the nurse?

A.Both morning and afternoon doses of gliclazide should be withheld on the day of surgery

B.Both the morning and afternoon dose of gliclazide can be given on the day of surgery

C.The morning dose of gliclazide should be held but the afternoon dose can be given

D.Gliclazide should be withheld 24 hours prior to surgery

E.Gliclazide should be withheld for 48 hours following surgery

Answer:The morning dose of gliclazide should be held but the afternoon dose can be given

Explanation:

Surgery / sulfonylureas on day of surgery:

omit on the day of surgery

exception is morning surgery in patients who take BD - they can have the afternoon dose

Important for meLess important

The correct answer is to withhold the morning dose and give the afternoon dose after the surgery. Sulfonylureas should be withheld on the morning of surgery if they are taken once daily. If the patient has a BD dose, like this patient, the morning dose should be withheld and the afternoon dose given. This is because according to the BNF there is a risk of ‘hypoglycaemia in the fasted state (prior to surgery) and therefore should always be omitted on the day of surgery until the patient is eating and drinking again’.

Withholding both doses is incorrect, only the morning dose needs to be withheld if the patient is having surgery in the morning.

To give both doses on the day of surgery is incorrect, due to the risk of hypoglycaemia in the fasted state prior to surgery.

Withholding 24 hours prior to the surgery is incorrect, sulfonylureas only need to be withheld the day of the surgery.

To withhold both doses for 48 hours is incorrect, doses only need to be held for the day of the surgery when the patient is not eating or drinking.

A comprehensive guide to managing diabetic patients on both insulin and anti-diabetic drugs during surgery can be found on the BNF website, containing information about when to introduce variable rate insulin infusions and withholding anti-diabetic medications.

Question:

A 41-year-old man develops itchy, polygonal, violaceous papules on the flexor aspect of his forearms. Some of these papules have coalesced to form plaques. What is the most likely diagnosis?

A.Lichen planus

B.Scabies

C.Lichen sclerosus

D.Morphea

E.Psoriasis

Answer:Lichen planus

Explanation:

Lichen

planus: purple, pruritic, papular, polygonal rash on flexor surfaces. Wickham's striae over surface. Oral involvement common

sclerosus: itchy white spots typically seen on the vulva of elderly women

Important for meLess important

Question:

A 39-year-old man presents to the GP with urinary incontinence. He mentions that sometimes he notices 'small dribbles of urine' passing when he does not want them to. He has not noticed any association with the timing of symptoms and says there is no association with coughing/sneezing. His only past medical history includes a fractured wrist 5 years ago and treatment for gonorrhoea 6 months ago.

Given this man's presentation what is the most likely diagnosis?

A.Stress urinary incontinence

B.Urethral stricture

C.Urge urinary incontinence

D.Mixed urinary incontinence

E.Functional urinary incontinence

Answer:Urethral stricture

Explanation:

Urinary problems in a man with a history of gonorrhoea may be due to a urinary stricture

Important for meLess important

This question is asking about a young man presenting with symptoms of urinary incontinence, the pattern of his symptoms, along with his history of gonorrhoea indicates that the cause of his symptoms is due to a urethral stricture.

If this was due to stress incontinence you would expect his symptoms to be precipitated by sneezing/coughing. This type of incontinence is often more common in women who have had children through vaginal delivery.

Urge incontinence would be preceded by a sudden need to urinate and not by a small dribble every so often. Therefore this is less likely.

Mixed incontinence is not correct as there are no features of urge or stress incontinence present in this patient.

In functional incontinence, there is a normal urinary system however other barriers cause the patients to become incontinent, such as poor mobility or pain.

Question:

A 60-year-old male is admitted to the in-patient psychiatric unit last night. On reviewing him this morning, he is a poor historian, answering most questions minimally and stating he does not need to be here as he is deceased, and hospitals should be for living patients.

What is the name of this delusional disorder and which condition is it most commonly associated with?

A.De Clerambault's syndrome and Major Depressive Disorder

B.Cotard syndrome and Major Depressive Disorder

C.Othello syndrome and Paranoid Schizophrenia

D.Capgras delusion and Dementia

E.Charles de Bonnet syndrome and Bipolar Disorder

Answer:Cotard syndrome and Major Depressive Disorder

Explanation:

Cotard syndrome is associated with severe depression

Important for meLess important

This patient is presenting with Cotard's syndrome, a rare subtype of nihilistic delusions, in which they believe they or part of them is dead or does not exist. This is seen most commonly in severe depression, but is also associated with schizophrenia.

Question:

A 35-year-old man is brought to the emergency department after a road traffic accident. He has a past medical history of COPD and smokes 30 cigarettes daily. His temperature is 37ºC, heart rate is 128/min, respiratory rate is 27/min, blood pressure is 80/43 mmHg, and GCS is 15. On examination he has right-sided chest bruising and tenderness to palpation, but chest movements are equal. His neck veins are distended but do not change with breathing and his trachea is central with heart sounds that are distant and quiet. There are also cuts and grazes seen on his hands and legs.

What is the next step in his management?

A.CT scan of the chest

B.Chest drain insertion into the triangle of safety

C.Needle decompression 2nd intercostal space, midclavicular line

D.Pericardial needle aspiration

E.Surgical fixation of ribs and analgesia

Answer:Pericardial needle aspiration

Explanation:

Consider cardiac tamponade in elevated JVP, persistent hypotension and tachycardia despite fluid resuscitation in a patient with chest wall trauma

Important for meLess important

Pericardial needle aspiration is correct. The presence of Beck's triad (hypotension + muffled (distant) heart sounds + elevated JVP) is characteristic of cardiac tamponade. This patient needs urgent aspiration of the pericardium to prevent further haemodynamic compromise. Although the patient is likely to have associated rib fractures, it essential to manage the cardiac tamponade first as it poses the biggest threat to his life in this scenario.

CT scan of the chest is incorrect. Although the patient is likely to have associated rib fractures, it essential to manage the cardiac tamponade first as it poses the biggest threat to his life in this scenario.

Chest drain insertion into the triangle of safety is incorrect. This is involved in the management of a tension pneumothorax, which is less likely as his trachea is central and Beck's triad is present.

Needle decompression 2nd intercostal space, midclavicular line is incorrect. This is involved in the management of a tension pneumothorax, which is less likely as his trachea is central and Beck's triad is present.

Surgical fixation of ribs and analgesia is incorrect. Although the patient may have associated rib fractures, it essential to manage the cardiac tamponade first as it poses the biggest threat to his life in this scenario.

Question:

A 56-year-old woman presents to the Emergency Department with sudden onset upper abdominal pain radiating to the back. She states that she has experienced pain similar to this episodically in the past, particularly after eating, however this is the worst so far. Her past medical history includes type 2 diabetes mellitus, chronic kidney disease (CKD) and hypercholesterolaemia. She does not smoke or drink alcohol. Her temperature is 37.9ºC, heart rate 96 bpm and blood pressure 110/80 mmHg. Examination reveals tenderness to palpation of the epigastrium. Blood tests are ordered, and her investigations are shown below.

Bilirubin 28 µmol/L (3 - 17)

ALP 321 µmol/L (30 - 100)

AST 93 iu/L (3 - 30)

Amylase 1090 u/L (70 - 300)

Calcium 1.92 mmol/L (2.1 - 2.6)

Which is the most appropriate next step in investigating the likely cause of her symptoms?

A.Blood cultures

B.Contrast enhanced CT abdomen

C.Endoscopic ultrasound

D.Magnetic resonance cholangiopancreatography (MRCP)

E.Transabdominal ultrasound

Answer:Transabdominal ultrasound

Explanation:

Early ultrasound imaging in acute pancreatitis is important to determine the aetiology as this may affect management (e.g. patients with gallstones/biliary obstruction)

Important for meLess important

This patient has presented with symptoms and signs suggestive of acute pancreatitis which is later confirmed on laboratory testing with a raised serum amylase and hypocalcaemia. The commonest causes of acute pancreatitis include alcohol and gallstones. This patient’s presentation is likely to be on a background of gallstones as her pain is worse postprandially and she has no history of alcohol use. An ultrasound scan is typically used first line to investigate suspected gallstone disease and is one of the most sensitive scans to visualise gallstones. NICE guideline suggest that an ultrasound scan should be requested to confirm the presence of gallstones. It may also help identify biliary aetiology in acute pancreatitis which will help guide management, usually cholecystectomy, and to prevent further attacks of pancreatitis or biliary sepsis.

Blood cultures are incorrect as the patient has not presented with signs of infection or sepsis.

Contrast enhanced CT can be used where there is diagnostic doubt, however due to the patient’s history of CKD this would not be the most appropriate investigation.

Endoscopic ultrasound would be indicated if further investigation with MRCP was inconclusive.

MRCP is only recommended by NICE if abdominal ultrasound has not detected gallstones.

Question:

A 22-year-old Afro-Caribbean man presents to his general practitioner with a 4-day history of increased urinary frequency and dysuria. He denies recent unprotected sexual intercourse or penile discharge. He has a past medical history of gallstones and reports that he was hospitalised last year for a severe blood reaction that the doctors told him was after eating a meal rich in broad beans.

On examination, he has suprapubic tenderness but no evidence of renal angle tenderness. His observations are all within normal limits.

What is the most important antibiotic to avoid prescribing for this patient?

A.Amoxicillin

B.Ciprofloxacin

C.Clindamycin

D.Cefuroxime

E.Trimethoprim

Answer:Ciprofloxacin

Explanation:

Ciprofloxacin is contraindicated in G6PD deficiency

Important for meLess important

This patient has a likely underlying diagnosis of G6PD deficiency. G6PD deficiency is an X-linked recessive disorder that causes a defect in the red cell enzyme glucose-6-phosphate dehydrogenase. As ciprofloxacin is mentioned in the list of drugs that precipitate haemolysis in patients with G6PD deficiency, it should be avoided in this patient.

The deficiency in the G6PD enzyme leads to intravascular haemolysis which can be triggered by the ingestion of certain drugs and foods (including fava (broad) beans). Drugs that can precipitate haemolysis in G6PD deficiency include antimalarials, ciprofloxacin, sulphonamides (including co-trimoxazole), sulphonylureas and sulphasalazine. All the other antibiotics in this question, however, are safe to prescribe in G6PD deficiency.

Amoxicillin is a penicillin antibiotic that may be unsafe to prescribe in patients with a history of severe anaphylaxis to penicillins, which this patient does not have.

Clindamycin is a lincomycin antibiotic that is contraindicated in patients with a history of pseudomembranous colitis or ulcerative colitis. This patient has no obvious contraindications to clindamycin.

Cefuroxime is a cephalosporin antibiotic that may be unsafe in patients with a history of severe anaphylaxis to penicillins; cephalosporin antibiotics have a 20% cross-reactivity with penicillins. Once again, this patient has no contraindications to cefuroxime.

Trimethoprim is an antibiotic that is unsafe to prescribe in the first trimester of pregnancy. This patient has no contraindications to being prescribed trimethoprim.

Question:

A 17-year-old male presents to the emergency department (ED) following a head injury during a rugby match.

His parents who witnessed the injury tell you he lost consciousness immediately after the collision for a number of minutes. He was then alert and himself for a couple of hours. They have now bought him to ED as he became drowsy and was complaining of a headache.

On examination his Glasgow coma scale (GCS) is 12, the pupils are unequal and there is a clear swelling on the right side of the head.

Given the likely diagnosis of an intracranial haemorrhage, which vessel has most likely been damaged?

A.Bridging veins

B.Carotid artery

C.Circle of Willis

D.Dural artery

E.Middle meningeal artery

Answer:Middle meningeal artery

Explanation:

Extradural or subdural haemorrhage? Extradural = lucid period, usually following major head injury. Subdural = fluctuating consciousness, often following trivial injury in the elderly or alcoholics

Important for meLess important

This is a classic presentation of an extradural haemorrhage with a Lucid interval after which the patient deteriorates.

Tearing of bridging veins is the primary pathology in a subdural haematoma.

Carotid artery - is not intracranial.

The Circle of Willis is the most common location for berry aneurysms to burst - this results in a subarachnoid haemorrhage and would classically present with a 'thunderclap headache'/

Dural artery - does not exist.

Damage to the middle meningeal artery is the primary pathology in extradural haematomas.

Question:

A 40-year-old patient who is on methotrexate for rheumatoid arthritis presents because her 5-year-old daughter has been suffering from chickenpox and she is concerned about developing it. She has not previously had had chickenpox herself and is currently well, with no symptoms or rash.

What would be the most appropriate advice to give this patient?

A.Give varicella zoster vaccination

B.No action required

C.Stop methotrexate

D.Test for varicella antibodies and give varicella-zoster immunoglobulin

E.Wait for up to 21 days to see if symptoms appear

Answer:Test for varicella antibodies and give varicella-zoster immunoglobulin

Explanation:

Patients who are immunosuppressed secondary to long-term steroids or methotrexate should receive VZIG if they are exposed to chickenpox and have no antibodies to varicella

Important for meLess important

Whilst chickenpox is generally a mild condition, it poses special risks to those who are immunosuppressed or pregnant.

Patients who have had significant exposure to varicella (as in this case as she has a child with active infection), should be offered active post-exposure prophylaxis with varicella-zoster immunoglobulin.

People who have had significant exposure to chickenpox and who are immunocompromised should be tested for varicella-zoster antibody, regardless of their history of chickenpox.

Waiting for up to 21 days to see if symptoms appear or taking no action is inappropriate because this patient is immunosuppressed and is therefore at risk of suffering severe varicella infection.

Likewise, stopping her methotrexate would be inappropriate since the immunosuppressive effects would take some time to abate.

Question:

A 35-year-old woman has been suffering from diarrhoea, abdominal pain and a few occurrences of rectal bleeding in the last few weeks. In the last two days, her symptoms have been more severe than before and she thus decided to attend her GP practice. She denies any recent changes in her diet and any systemic symptoms. Her GP refers her for specialist care. On histological examination of her bowel, crypt abscesses are seen.

What is the most likely diagnosis?

A.Crohn's disease

B.Infectious colitis

C.Irritable bowel syndrome

D.Pseudomembranous colitis

E.Ulcerative colitis

Answer:Ulcerative colitis

Explanation:

Ulcerative colitis - crypt abscesses

Important for meLess important

Ulcerative colitis is correct. The symptoms this woman experiences are quite typical of inflammatory bowel disease. The presence of crypt abscesses and rectal bleeding differentiate it from Crohn's disease and point towards a diagnosis of ulcerative colitis.

Crohn's disease is wrong. Although abdominal pain and diarrhoea are common in Crohn's disease patients, rectal bleeding are not typical of Crohn's disease. In addition, crypt abscesses are not seen in these patients, hence this diagnosis is unlikely.

Infectious colitis is also wrong. The symptoms of this patient, the rectal bleeding, diarrhoea and abdominal pain, could be explained by infectious colitis. However, in this disease, a more acute presentation would be more likely and crypt abscesses would not be seen on histological examination. Also, due to the infection, a high temperature would be a typical symptom that is not seen in this case.

Irritable bowel syndrome (IBS) is incorrect. Abdominal pain and diarrhoea are common in IBS patients. However, the rectal bleeding and the crypt abscess would not be explained by this diagnosis.

Pseudomembranous colitis is incorrect. As the name suggests, pseudomembranes are plaques consisting of inflammatory cells and mucous exudate which are usually seen during sigmoidoscopy or colonoscopy. Diarrhoea and abdominal pain are common in pseudomembranous colitis, with fever also being sometimes present in some patients. However, the timeline of the patient's symptoms would be more acute. This condition is also usually caused by the bacteria Clostridium difficile and is associated with recent antibiotic use, which is not mentioned in this case.

Question:

You are reviewing routine blood test results for Victor, who is a 71-year-old Afro-Caribbean male. His HbA1c has come back as 56mmol/mol. His previous result for HbA1c was 44 mmol/mol. Victor has a past medical history of hypertension and hypercholesterolaemia and his body mass index is 32kg/m².

You have a telephone consultation with Victor. He tells you that he feels well in himself and has no symptoms of thirst, weight loss or recurrent infection.

What is the most appropriate information to give to Victor?

A.No further action is required, Victor should let you know if he experiences any new symptoms

B.He requires a repeat blood test to re-check HbA1c level

C.Type 2 diabetes can be diagnosed on this result and antidiabetic medication should be commenced

D.He has type 2 diabetes and requires a face to face consultation to discuss lifestyle changes

E.You will book him in for a face to face consultation so that you can screen for complications of type 2 diabetes

Answer:He requires a repeat blood test to re-check HbA1c level

Explanation:

Asymptomatic patients with an abnormal HbA1c or fasting glucose must be confirmed with a second abnormal reading before a diagnosis of type 2 diabetes is confirmed

Important for meLess important

NICE guidelines state:

'In an asymptomatic person, the diagnosis of diabetes should never be based on a single abnormal HbA1c or fasting plasma glucose level; at least one additional abnormal HbA1c or plasma glucose level is essential.'

As Victor is asymptomatic, his HbA1c will need to be repeated. If the second test results are normal, it is prudent to arrange regular review for Victor.

Stating no further action is required is incorrect as Victor may well have type 2 diabetes which will need to be managed, but he initially requires a repeat HbA1c level. As mentioned, even if the repeat HbA1c is normal, he will still require regular review as per NICE guidance.

Telling Victor that he has type 2 diabetes is incorrect as he is asymptomatic and this requires at least 2 abnormal HbA1c readings for diagnosis. Therefore discussing antidiabetic medication at this stage would be inappropriate. Likewise, advising a face to face consultation to screen for complications of diabetes is premature - this can be carried out if and once the diagnosis is confirmed.

NICE states that diabetes is usually diagnosed by an HbA1c of 48 mmol/mol (6.5%) or more. If the use of HbA1c is inappropriate (for example in people with end-stage chronic kidney disease), type 2 diabetes is diagnosed by a fasting plasma glucose level of 7.0 mmol/L or greater. In asymptomatic patients, 2 abnormal readings are required for diagnosis.

Question:

Which one of the following symptoms may indicate mania rather than hypomania?

A.Predominately elevated mood

B.Delusions of grandeur

C.Increased appetite

D.Flight of ideas

E.Irritability

Answer:Delusions of grandeur

Explanation:

Question:

A 45-year-old woman presents to the emergency department with severe polydipsia and polyuria.

Na+ 149 mmol/L (135 - 145)

K+ 4.9 mmol/L (3.5 - 5.0)

Urea 3.2 mmol/L (2.0 - 7.0)

Creatinine 94 µmol/L (55 - 120)

Post-fluid-deprivation urine osmolality 230 mmol/kg (>600)

Urine osmolality post-desmopressin 624 mmol/kg (>600)

Given the most likely diagnosis, what treatment is most likely to be effective?

A.Hydrochlorothiazide

B.Hypotonic fluid replacement

C.Sodium restricted diet

D.Vasopressin V2 receptor agonist

E.Vasopressin V2 receptor antagonist

Answer:Vasopressin V2 receptor agonist

Explanation:

Central diabetes insipidus can be treated with desmopressin

Important for meLess important

Vasopressin V2 receptor agonist is correct. From the history and investigation via the water deprivation test, this is likely diabetes insipidus. The next step is to differentiate a central (cranial) vs a nephrogenic cause. As the initially low urine osmolality is corrected by synthetic ADH after 8 hours, this suggests the pituitary isn't releasing ADH correctly, and the kidneys are responding to exogenous ADH. Therefore, we can infer this is central diabetes insipidus. Vasopressin V2 receptor agonists such as desmopressin work as a synthetic replacement for ADH, and therefore can be used to treat the condition.

Hydrochlorothiazide is incorrect. Thiazides are indicated in nephrogenic diabetes insipidus, which can help reduce urine output and therefore fluid loss. Nephrogenic diabetes insipidus would have given a low urine osmolality that wouldn't increase after synthetic ADH administration. This is because the kidneys are unresponsive to ADH, synthetic or endogenous.

Hypotonic fluid replacement is incorrect, as hypotonic fluids are given in acute diabetes insipidus where hypernatraemia is causing symptoms associated with electrolyte derangements. There is no indication this patient is acutely unstable as a result of fluid loss (e.g. hypovolaemic).

Vasopressin V2 receptor antagonist is incorrect. Example drugs of this class are the '-vaptans' such as tolvaptan. They play a role in the management of autosomal dominant polycystic kidney disease and hyponatraemia. Administering these drugs is likely to worsen the patient's condition as they do the opposite of the desired effect.

Sodium restricted diet is incorrect. Again, this may be recommended for patients with nephrogenic diabetes insipidus.

Question:

A 6-month-old baby presents with feeding difficulties associated with a cough and wheeze and is diagnosed with bronchiolitis.

Which of the following is a precipitating factor for a more severe episode of bronchiolitis and not just an increased risk of developing bronchiolitis?

A.Underlying congenital heart disease

B.Fragile X syndrome

C.Being fed on formula milk instead of breast milk

D.Aged between 3-6 months

E.Being born at 37 weeks gestation

Answer:Underlying congenital heart disease

Explanation:

Congenital heart disease can cause bronchiolitis to be more severe

Important for meLess important

A ventricular septal defect is the most common type of congenital heart disease and this would be a risk factor for a more severe episode of bronchiolitis occurring. It's also a risk factor for an increased complication rate.

Fragile X is not associated with worse episodes of bronchiolitis, however, Down's syndrome has been.

Being fed on formula milk is a risk factor for bronchiolitis, however, does not increase the severity of the disease once it has already been caught

While the ages of 3-6 months are the most common for bronchiolitis, being aged between 3 and 6 months is not an indicator of a more severe episode. But being younger than 3 months (12 weeks) is a risk factor

Being born at term (37 weeks) is normal and not a risk factor. Being premature is however a risk factor for more severe episodes

Question:

Jasmine presented to the emergency department because of a fall at home. She suffered a large laceration to the head. She is alert and oriented. However, the bleeding from the laceration has not stopped for almost 25 minutes. The CT head scan is normal.

Her past medical history included pulmonary embolism 4 months ago for which she is taking dabigatran.

Which of the following is a potentially useful drug to reverse the bleeding?

A.Oral vitamin K

B.Intravenous vitamin K

C.Fresh frozen plasma

D.Idarucizumab

E.Protamine

Answer:Idarucizumab

Explanation:

Idarucizumab is a reversal agent for dabigatran

Important for meLess important

Dabigatran is a new oral anticoagulant, used in this case to prevent another venous thromboembolic episode. Dabigatran is a direct thrombin inhibitor. Unlike other NOACs, dabigatran has an antidote i.e. Idarucizumab. Idarucizumab is a humanised monoclonal antibody that directly inhibits dabigatran.

Protamine helps to reverse heparin.

Vitamin K and fresh frozen plasma are used for warfarin reversal.

Question:

You are asked to review a patient with chronic kidney disease who requires antibiotics for a systemic bacterial infection. You are concerned about the dangers of prescribing drugs that are excreted by the kidney, to a patient with renal impairment. The microbiology department informs you that the culture and sensitivity results are available, and recommend the following options:

Antibiotics

Ceftazidime

Metronidazole

Meropenem

Piperacillin-tazobactam

Vancomycin

Which one of these options would require therapeutic drug monitoring in a patient with renal impairment?

A.Ceftazidime

B.Metronidazole

C.Meropenem

D.Piperacillin-tazobactam

E.Vancomycin

Answer:Vancomycin

Explanation:

Vancomycin requires therapeutic monitoring in patients with renal failure

Important for meLess important

Vancomycin and gentamicin require therapeutic drug monitoring due to their accumulation and toxicity in renal impairment. The rest of the antibiotics don’t require drug monitoring although they may require dose adjustment.

Question:

An 18-year-old girl presents to her GP with discharge. She reports a new sexual partner with whom she is not using barrier protection. On examination thick cottage-cheese like discharged is visualised. She reports no other symptoms of note. What is the most likely diagnosis?

A.Bacterial vaginosis

B.Candida albicans

C.Chlamydia

D.Gonorrhoea

E.Trichomonas

Answer:Candida albicans

Explanation:

Cottage-cheese like discharge is almost pathognomonic of thrush

Important to rule out chlamydia and gonorrhoea in this age group, especially given their high prevalence, however, remember that 70% of chlamydia is asymptomatic in women, and the majority of gonorrhoea is also asymptomatic

Question:

A previously well 24-year-old female presents with a one-day history of profuse diarrhoea, concerned after having noticed some bright red blood in the stool. For the past 3 days, she had been feeling generally unwell. She denies eating anything unusual although she did attend a barbecue four days ago.

Which of the following organisms is most likely responsible for her presentation?

A.Bacillus cereus

B.Campylobacter jejuni

C.Clostridium difficile

D.Salmonella enteritidis

E.Staphylococcus aureus

Answer:Campylobacter jejuni

Explanation:

Campylobacter infection is characterised by a prodrome, abdominal pain and bloody diarrhoea

Important for meLess important

Campylobacter infection is the most common bacterial cause of infectious intestinal disease in the UK. This patient has presented with the hallmark symptoms of prodrome and bloody diarrhoea. The incubation period for Campylobacter is 1-6 days which is in keeping with the presentation for this patient.

Bacillus cereus is associated with food poisoning from reheated rice. The incubation period for Bacillus cereus is usually only up to 6 hours for vomiting disease and slightly longer for diarrhoeal illness. However, this would not usually cause bloody diarrhoea.

Clostridium difficile infection is more commonly encountered in a hospital setting and is associated with broad-spectrum antibiotic use. There is no mention of risk factors for Clostridium difficile infection and therefore this is unlikely.

Salmonella enteritidis has an incubation period of 12 - 48 hours and is usually associated with severe vomiting and a high fever. It can cause bloody diarrhoea, but due to the short incubation period and prodromal symptoms, Salmonella is less likely to be the cause for this patient.

Staphylococcus aureus has a short incubation period of 1-6 hours and is usually characterised by sudden onset of nausea, vomiting and abdominal cramps.

Question:

An elderly woman, with multiple established medical issues, is referred to the endocrine clinic with symptoms of polydipsia, polyuria and general myalgia.

Serum blood tests confirm a raised calcium and parathyroid hormone level with imagining confirming the presence of a parathyroid adenoma.

Given the patient’s presentation and other extensive comorbidities, conservative management instead of surgery was suggested. The patient agrees and is commenced on a calcimimetic medication.

On repeat blood tests a reduction in both calcium and PTH is seen and her symptoms improved.

What medication was the patient most likely commenced on?

A.Alendronate

B.Calcitonin

C.Calcitriol

D.Calcium carbonate

E.Cinacalcet

Answer:Cinacalcet

Explanation:

Cinacalcet is a calcimimetic - a drug that 'mimics' the action of calcium on tissue by allosteric activation of the calcium-sensing receptor

Important for meLess important

This patient has presented with the classical features of primary hyperparathyroidism with symptoms secondary to raised calcium, confirmed on blood tests and a raised parathyroid hormone (PTH) level. The definitive treatment for primary hyperparathyroidism is a total parathyroidectomy however conservative management may be used if specific severity markers are absent or if the patient is not fit for surgery (as in this patient). For these cases the medication cinacalcet maybe used. This is a calcimimetic drug that mimics the action of calcium on tissues including the parathyroid gland. It increases the sensitivity of calcium receptors on parathyroid cells, reducing PTH levels and resulting in a decrease in serum calcium levels.

Alendronate is a bisphosphonate used in the management of bone conditions including osteoporosis and Paget’s disease. It works by inhibiting osteoclast-mediated bone resorption and therefore reduced bone breakdown but has no role in the management of hyperparathyroidism.

Calcitonin is a hormone secreted by the parafollicular cells of the thyroid gland. It acts to reduce blood calcium levels. Calcitonin is functionally an antagonist to PTH, and so is not a calcimimetic. Although it can be used for the treatment of hypercalcaemia it is not commonly used in the management of hyperparathyroidism.

Calcitriol, also known as 1,25-dihydroxycholecalciferol is the active form of vitamin D, normally produced in the kidney. Calcitriol results in an increased uptake of calcium from the intestines and therefore increases serum calcium level. As such it is used in the management of conditions resulting in hypocalcaemia including hypoparathyroidism and osteomalacia.

Calcium carbonate is mainly used therapeutically as a dietary calcium supplement and as a gastric antacid. It may also be used as a phosphate binder in conditions causing hyperphosphataemia such as renal impairment but again it has no role in the management of hyperparathyroidism.

Question:

A 58-year-old man attends the emergency department with palpitations, reporting a 'racing heart' for four days, but denies any pre-syncope or chest pain. Usually, he is fit and well. On assessment, his ECG reveals an irregularly irregular pulse, with a ventricular rate of 105 bpm. He is haemodynamically stable. He is given oral bisoprolol, and his heart rate drops to 68 bpm. He is not keen to take medications long-term.

What is the most appropriate management strategy?

A.Administer four weeks of anticoagulation and beta-blockade prior to elective cardioversion

B.Discharge with beta-blockade and oral anticoagulation

C.Perform a transoesophageal echocardiogram before performing immediate electrical cardioversion

D.Start an intravenous heparin infusion before performing immediate electrical cardioversion

E.Start oral amiodarone

Answer:Administer four weeks of anticoagulation and beta-blockade prior to elective cardioversion

Explanation:

If a patient has been in AF for more than 48 hours then anticoagulation should be given for at least 3 weeks prior to cardioversion. An alternative strategy is to perform a transoesophageal echo (TOE) to exclude a left atrial appendage (LAA) thrombus

Important for meLess important

Administer four weeks of anticoagulation and beta-blockade before elective cardioversion is the correct answer. This scenario is not an emergency as the patient is hemodynamically stable and his ventricular rate is not significantly raised. Because more than 48 hours have elapsed since the onset of symptoms, cardioversion would risk thrombus embolisation from the left atrial appendage. Instead, several weeks of oral anticoagulation would be required before cardioversion. A rhythm control approach is often more appealing than a rate control approach in a relatively young patient, as it eliminates the need to take medications long-term.

Discharge with beta-blockade and oral anticoagulation is incorrect. Whilst rate control is a reasonable approach, it is clear this patient does not want to take medications long-term. Whilst his rhythm remains abnormal, he is at a higher risk of thrombus formation, which could result in a stroke. Therefore, whilst his atrial fibrillation persists, he should receive an anticoagulant. A better approach would be to arrange cardioversion to revert his rhythm back to sinus, which would reduce the need for him to take medications long-term.

Perform a transoesophageal echocardiogram before performing immediate electrical cardioversion is incorrect. Since this patient is hemodynamically stable, there is no need for immediate treatment. There is no need to perform a transoesophageal echocardiogram (TOE) to assess for left atrial appendage thrombus. A TOE is an invasive and uncomfortable procedure. A better approach would be to administer several weeks of oral anticoagulation before proceeding to cardioversion.

Start an intravenous heparin infusion before performing immediate electrical cardioversion is incorrect. A thrombus may have formed within the heart during the four days of atrial fibrillation. However, there is no rush to administer immediate cardioversion with intravenous anticoagulation. A safer and more controlled approach is for several weeks of anticoagulation before cardioversion.

Start oral amiodarone is incorrect. Atrial fibrillation can be treated using either a rate or rhythm control approach. In a relatively young patient, a rhythm control approach would be best, as it negates the need for long-term medications. Furthermore, amiodarone is a medication associated with several important side effects and would require baseline liver function tests and a chest x-ray.

Question:

You are a doctor working in the emergency department. A 79-year-old man is waiting to be reviewed by a doctor after falling at home. A nurse comes to tell you that the man is concerned that he is due to take his medication in half an hour, but he hasn't got it with him. The patient is very worried about this as he has been told he should always take it on time. His past medical history includes hypertension, type 2 diabetes, Parkinson's disease, and depression. His regular medications are lisinopril, metformin, gliclazide, ropinirole, and citalopram.

Which of his medications is most likely to cause harm if missed?

A.Citalopram

B.Gliclazide

C.Lisinopril

D.Metformin

E.Ropinirole

Answer:Ropinirole

Explanation:

Levodopa and other antiparkinsons drugs are 'critical' medicines which should not be stopped on acute admissions and must be delivered on time

Important for meLess important

Ropinirole is the correct answer. Ropinirole is a dopamine agonist used to treat Parkinson's disease. Parkinson's medications are 'critical' medicines that must always be given on time to ensure stable drug levels in the blood and prevent symptoms from occurring.

Citalopram is incorrect. Citalopram is a selective serotonin reuptake inhibitor used to manage depression. While it is good practice to take this medication at the same time each day, it is not a 'critical' medicine so a delay is unlikely to have any adverse effect.

Gliclazide is incorrect. Gliclazide is a sulfonylurea used in the treatment of type 2 diabetes. Patients should try to take this at the set times but this is not a 'critical' medicine so there are unlikely to be any adverse effects if a dose is delayed.

Lisinopril is incorrect. Lisinopril is an ACE inhibitor used to manage hypertension. This is not a 'critical' medicine, there is unlikely to be any adverse effect if a dose is delayed or missed.

Metformin is incorrect. This is used in the management of type 2 diabetes. Patients should try to take it at the same time each day but it is not a 'critical' medicine so there is not likely to be any adverse effect if a dose is delayed.

Question:

A mother arrives at the paediatric emergency department with her 4-year-old boy. He has a fever and she has noticed raised nodes on his neck. She has given him paracetamol and ibuprofen but his temperature is not reducing. His lips have become extremely dry and cracked and his tongue red and slightly swollen. She has noticed that his feet are also red and puffy now, and he is developing a widespread fine rash. What is the most likely diagnosis?

A.Hand, foot and mouth disease

B.Kawasaki's disease

C.Measles

D.Parvovirus B19

E.Scarlet Fever

Answer:Kawasaki's disease

Explanation:

High fever lasting >5 days, red palms with desquamation and strawberry tongue are indicative of Kawasaki disease

Important for meLess important

This presentation is typical of Kawasaki's disease. It presents with a high fever that is not very responsive to paracetamol or ibuprofen. The patient then develops a 'strawberry tongue,' dry cracked lips and inflamed mucosa. Erythema and oedema are followed by desquamation of the extremities. Hand, foot and mouth disease starts with general malaise and pyrexia, however skin lesions in the form of vesicles appear in the mouth. 75% develop an eruption on the hands and feet with tender papule and vesicles. Measles presents with a fever and coryzal symptoms. Koplick's spots can develop on the oral mucosa however these are bright red with a bluish white speck at the centre. A maculo-papular rash arrives 3-5 days later. Parvovirus B19 is also known as 'slapped cheek syndrome. Scarlet fever presents with an inflamed tongue also, however would not explain the red and puffy feet which later desquamate.

Question:

A 40-year-old woman presents to her GP with a history of menorrhagia, she notes that more recently her periods last 10 days and are very heavy. In addition to this, she has no history of weight loss, her recent sexual health screen was negative and her examination findings are normal. She has two children and has completed her family.

What is the first line treatment in this patient?

A.Intrauterine system (Mirena coil)

B.Ferrous sulphate and mefenamic acid acid

C.Oral contraceptive pill

D.GNRH analogue

E.Tranexamic acid

Answer:Intrauterine system (Mirena coil)

Explanation:

Menorrhagia - intrauterine system (Mirena) is first-line

Important for meLess important

In this case, the patient has completed her family, in addition to this there is no suggestion in the information provided in the question that she may have an underlying pathology responsible for her menorrhagia.Therefore she is a candidate for pharmaceutical therapy.NICE CKS states that the Mirena coil is first line management in women whom long term contraception with an intrauterine device is acceptable.

Question:

A 29-year-old woman with her first pregnancy presents to you at 30-weeks gestation with itchiness. There is no rash on examination and after referral to an obstetrician, she is confirmed to be suffering from intrahepatic cholestasis of pregnancy and is treated with ursodeoxycholic acid. The patient mentions her obstetrician said something about her labour but she was not sure.

What needs to be planned regarding this patient's labour?

A.Normal labour

B.Caesarean section at 37-38 weeks gestation

C.Induction of labour at 37-38 weeks gestation

D.Caesarean section at 40 weeks gestation

E.Induction of labour at 40 weeks gestation

Answer:Induction of labour at 37-38 weeks gestation

Explanation:

Intrahepatic cholestasis of pregnancy increases the risk of stillbirth; therefore induction of labour is generally offered at 37-38 weeks gestation

Important for meLess important

This patient requires induction of labour at 37-38 weeks to minimise the risk of stillbirth. This is common practice and may optimise her outcomes therefore a normal labour is not appropriate. She is suffering from intrahepatic cholestasis of pregnancy which causes intense pruritus and is treated with ursodeoxycholic acid.

A caesarean section at 37-38 weeks is not necessarily indicated at this stage but may need to be done on an emergency basis if further complications or issues arise that require this.

A caesarean section at 40 weeks is also not indicated at this stage. There may be issues that arise later in pregnancy such as breech birth or emergencies that necessitate this procedure.

Induction of labour at 40 weeks is later than the suggested timeline. This is offered at around 37-38 weeks to minimise the chances of stillbirth.

Question:

Which one of the following causes of diarrhoea has the shortest incubation period?

A.Salmonella

B.Shigella

C.Campylobacter

D.Escherichia coli

E.Bacillus cereus

Answer:Bacillus cereus

Explanation:

Question:

You are a junior doctor working in a GP practice. A 13-year-old girl comes to see you requesting a prescription for the oral contraceptive pill. On further questioning, she tells you she has a sexual relationship with her 14-year-old boyfriend. She is refusing to speak to her parents about it and states that she will continue having sex even if she doesn't get the pill and she understands the risks associated with this. She is otherwise well with no history of migraines and she has normal blood pressure. What do you do?

A.Give her a prescription for the contraceptive pill but encourage her to discuss this with a parent

B.Refer her to a sexual health clinic

C.Refuse to give her any prescription unless she attends with a parent

D.Give her a prescription for the contraceptive pill but call her parents after to let them know

E.Make a referral to social services

Answer:Give her a prescription for the contraceptive pill but encourage her to discuss this with a parent

Explanation:

The GMC good medical practice advice about contraception in those aged 0-18 years states;

'You can provide contraceptive, abortion and STI advice and treatment, without parental knowledge or consent, to young people under 16 provided that:

They understand all aspects of the advice and its implications

You cannot persuade the young person to tell their parents or to allow you to tell them

In relation to contraception and STIs, the young person is very likely to have sex with or without such treatment

Their physical or mental health is likely to suffer unless they receive such advice or treatment, and

It is in the best interests of the young person to receive the advice and treatment without parental knowledge or consent

You should keep consultations confidential even if you decide not to provide advice or treatment (for example, if your patient does not understand your advice or the implications of treatment).'

In this question, the young girl fulfils the Frazer guidelines, thus you should prescribe her the pill. So answers 2, 3 and 5 are clearly wrong. This leaves us with answer 1 and 4.In answer 4 this involves breaking confidentiality, which the GMC guidelines states we should not do. This leaves us with the correct answer - 1.

Question:

A 24-year-old man with a 9 month history of diarrhoea has had a series of investigations, all of which have come back normal. His consultant now thinks he has irritable bowel syndrome (IBS).

What is the most appropriate management for his diarrhoea?

A.Acupuncture

B.Codeine phosphate

C.Co-phenotrope

D.Lactulose

E.Loperamide

Answer:Loperamide

Explanation:

Loperamide is first-line for treatment of diarrhoea in IBS

Important for meLess important

The first line anti-diarrhoea medication in IBS is loperamide (imodium). Co-phenotrope and codeine are both anti-motility medications, but are not recommended first line. Lactulose is for management of constipation, but is advised not to be used in IBS, and acupuncture is not approved by NICE for treatment of IBS.

Question:

A 24-year-old rugby player is suddenly collapses during a game. After being rushed to hospital it is suspected that he has hypertrophic obstructive cardiomyopathy.

Which of the following signs can be classically elicited on examination of someone with this condition?

A.S3

B.Mid diastolic murmur

C.Pericardial rub

D.S4

E.Mid-systolic murmur radiating to the carotid area

Answer:S4

Explanation:

Hypertrophic obstructive cardiomyopathy - is classically associated with an S4

Important for meLess important

S3 is most commonly caused by heart failure which is the result of a dilated, compliant ventricle. In young people S3 can be incidental and bear no clinical significance.

A mid diastolic murmur is classically seen in mitral stenosis.

A pericardial rub is usually made up of one systolic and 2 diastolic sounds which can indicate pericarditis.

Hypertrophic obstructive cardiomyopathy is associated with a mid-systolic murmur however it classically does not radiate to the carotids.

Therefore S4 is the correct answer which is associated with hypertrophy of the ventricles and always indicates some form of pathology.

Question:

A 22-year-old woman who is 14 weeks pregnant presents to her GP as she thinks she has been exposed to an infectious disease. Her friend's daughter has a crusty rash and a fever.

She has no past medical history and when questioned, doesn't know whether she has had chickenpox as a child.

What is the first action to perform?

A.A prescription for oral acyclovir to start on day 7 after the exposure

B.Check varicella antibodies

C.Immediate administration of oral acyclovir

D.Immediate administration of the varicella zoster vaccination

E.Immediate administration of varicella-zoster immunoglobulin

Answer:Check varicella antibodies

Explanation:

Chickenpox exposure in pregnancy - first step is to check antibodies

Important for meLess important

The first step in a pregnant woman who has been exposed to chickenpox is to check varicella antibodies if they do not know whether they have had chickenpox in the past. The presence or absence of antibodies will guide the next steps in management.

If a pregnant patient >20 weeks gestation is found to not be immune to varicella-zoster after antibody testing, they should be prescribed varicella-zoster immunoglobulin or they should be given oral acyclovir 7-14 days post-exposure. Delaying the administration of oral acyclovir has been shown to reduce the rate of development of chickenpox.

Oral acyclovir is indicated if a pregnant patient >20 weeks gestation develops chickenpox. It can also be used in caution in a patient <20 weeks gestation. As this patient doesn't have signs and symptoms of chickenpox as of yet, this is not indicated.

The varicella-zoster vaccination is contraindicated in pregnancy as being a live attenuated vaccine, it could cross the placenta and cause foetal varicella syndrome. It can be given to patients who have not had chickenpox as a child and are not shown to be immune to antibody testing, but it must be advised that they avoid getting pregnant for three months after administration.

Varicella-zoster immunoglobulin is indicated if the patient is shown to not be immune on antibody testing if they can receive it within 10 days of exposure. It provides rapid protection but is short-lived so patients should be advised to get the varicella-zoster vaccine after their pregnancy.

Question:

A 17-year-old male presents to the Ear Nose and Throat clinic to discuss the results from the fine needle aspirate taken from a smooth, fluctuant, non-tender, non-translucent mass located anterior to his left sternocleidomastoid muscle. It does not move on tongue protrusion. The aspirate reveals an acellular fluid with cholesterol crystals.

Based on the clinical and pathological information, what is the mass most likely to be?

A.Branchial cyst

B.Thyroglossal cyst

C.Cystic hygroma

D.Reactive lymphadenopathy

E.Dermoid cyst

Answer:Branchial cyst

Explanation:

A branchial cyst is typically a benign, lateral, unilateral neck mass

Important for meLess important

A branchial cyst is typically a benign lesion that is situated in the lateral neck, superficial to the sternocleidomastoid muscle. The classical pathological finding in a branchial cyst is an acellular fluid with cholesterol crystals.

A thyroglossal cyst is typically midline and moves with tongue protrusion. A cystic hygroma typically presents in infancy and lymph would be aspirated. Reactive lymphadenopathy would present secondary to another pathological process and would unlikely be multifocal. Dermoid cysts are more typically found in the midline.

Question:

The mother of a 2-year-old girl arranges a telephone consultation to request your advice regarding febrile convulsions.

Unfortunately, her daughter was admitted to hospital a few days ago with her first febrile seizure, thought secondary to a viral upper respiratory tract infection. She describes it as a typical, tonic-clonic simple febrile convulsion lasting 2-3 minute with full recovery in around 30 minutes.

Her mother remembers being told that there is a risk of this happening again, however, recognised that the did not do anything really to treat it and she was discharged home.

She requests your advice regarding at what point an ambulance should be called if this happens again?

A.A further simple febrile convulsion lasting 4 minutes with recovery taking >30minutes

B.A further simple febrile convulsion lasting > 5 minutes

C.A further simple febrile convulsion lasting > 10 minutes

D.A further simple febrile convulsion lasting > 15 minutes

E.A further simple febrile convulsion within 48 hours

Answer:A further simple febrile convulsion lasting > 5 minutes

Explanation:

Parents should be advised to call an ambulance if a febrile convulsion lasts >5 minutes

Important for meLess important

Some children do get recurrent febrile convulsions. Simple febrile convulsion tend to be tonic-clonic, lasting up to 15 minutes with complete recovery within an hour.

It is therefore recognised that for these children, they can be relatively safely managed at home, sometimes with the use of buccal midazolam or rectal diazepam within clear and detailed parental guidance around when to call for help.

It is currently recommended that any febrile convulsion lasting >5 minutes, parents should be phoning an ambulance.

A further convulsion < 5 minutes long with recovery >30mins may be able to stay at home if the recovery is between 30-60 minutes.

A febrile convulsion lasting > 10 or 15 minutes should have already had an ambulance called after >5 minutes.

A further simple febrile convulsion within 48 hours is not an indication to call an ambulance as long as it lasts less than 5 minutes as above.

Question:

An 81-year-old male presents to the general practitioner with progressive dyspnoea, chronic cough and wheeze. He has an 80-pack-year smoking history and despite taking an ipratropium inhaler, his symptoms are poorly controlled. His past medical history includes chronic obstructive pulmonary disorder (COPD), atopy, gastro-oesophageal reflux disease and hypertension. Blood tests show the following:

Hb 150 g/L Male: (135-180)

Platelets 250 \* 109/L (150 - 400)

WBC 10.1 \* 109/L (4.0 - 11.0)

Neutrophils 5.6 \* 109/L (1.8 – 7.5)

Lymphocytes 3.1 \* 109/L (1.0 – 4.0)

Monocytes 0.5 \* 109/L (0.2 – 0.8)

Eosinophils 1.2 \* 109/L (0.1 – 0.4)

Basophils 0.06 \* 109/L (0.02 – 0.10)

Which of the following is the next most appropriate step in the management of this patient?

A.Ipratropium and beclomethasone bronchodilator therapy

B.Montelukast and tiotropium bronchodilator therapy

C.Salmeterol and beclomethasone bronchodilator therapy

D.Salmeterol and montelukast bronchodilator therapy

E.Tiotropium and salmeterol bronchodilator therapy

Answer:Salmeterol and beclomethasone bronchodilator therapy

Explanation:

COPD - still breathless despite using SABA/SAMA and asthma/steroid responsive features → add a LABA + ICS

Important for meLess important

This patient has a significant smoking history and is presenting with dyspnoea, chronic cough and wheeze on a background of poorly controlled chronic obstructive pulmonary disorder (COPD). As this patient has a history of atopy and eosinophilia, they have COPD with asthmatic features. Initial management of COPD with asthmatic features is with an inhaled short-acting beta-agonist or short-acting muscarinic-antagonist, which he has already trialled. As his symptoms are not controlled with first-line therapy, the next step in the management of COPD with asthmatic features is with a long-acting beta-agonist (salmeterol) and an inhaled corticosteroid (beclomethasone).

Ipratropium and beclomethasone bronchodilator therapy is incorrect as ipratropium is a short-acting muscarinic antagonist and is therefore not indicated in this patient.

Montelukast and tiotropium bronchodilator therapy is incorrect. Montelukast is a leukotriene receptor antagonist and tiotropium is a long-acting muscarinic antagonist, neither of which are indicated.

Salmeterol and montelukast bronchodilator therapy is incorrect as an inhaled corticosteroid should be prescribed rather than montelukast.

Tiotropium and salmeterol bronchodilator therapy is incorrect as an inhaled corticosteroid should be prescribed rather than tiotropium.

Question:

A 45-year-old man presents with palpitations that began around 40 minutes ago. Other than having a stressful day at work there appears to have been no obvious trigger. He denies any chest pain or dyspnoea. An ECG shows a regular tachycardia of 180 bpm with a QRS duration of 0.10s. Blood pressure is 106/70 mmHg and oxygen saturations are 98% on room air. You ask him to perform the Valsava manoeuvre but this has no effect on the rhythm. What is the most appropriate next course of action?

A.Electrical cardioversion

B.Intravenous labetalol

C.Intravenous adenosine

D.Intravenous amiodarone

E.Re-attempt Valsava manoeuvre in 5 minutes

Answer:Intravenous adenosine

Explanation:

Patients with SVT who are haemodynamically stable and who do not respond to vagal manoeuvres, the next step is treating with adenosine

Important for meLess important

This patient has a supraventricular tachycardia with no adverse signs (e.g. shock, myocardial ischaemia etc). If vagal manoeuvres fail intravenous adenosine should be given.

Question:

You are an FY2 in General Practice and are reviewing a 40-year-old woman with a long-standing history of recurrent tension headaches and chronic back pain, for which she takes regular co-codamol. For the last month she reports having a headache almost every day and now feels the headache never really leaves her at all. There is no worsening of the headache with coughing and no focal neurological deficit elicited on examination.

Given the likely diagnosis, which of the following features would provide a definitive diagnosis?

A.Symptoms resolve (or revert to their original pattern) within 2 months of stopping co-codamol

B.History of regular overuse of co-codamol - at least 10 days per month for 3 months or more

C.Unilateral headache with visual disturbance

D.Headache is improved by exercise

E.Headache is worst at night

Answer:Symptoms resolve (or revert to their original pattern) within 2 months of stopping co-codamol

Explanation:

Regular opioid medication can lead to medication overuse headaches

Important for meLess important

This question aims to tackle two key aspects of medication overuse headache (MOH) diagnosis.

The first key concept is that patients that have been taking opioid analgesia (codeine or co-codamol in particular) for an extended period, such as this patient, are at risk of MOH. For opioids and triptans, this overuse is defined as 'using the medication on 10 days or more per month, for 3 months or more'. However, a history of regular medication overuse only forms part of the definition of MOH, and the diagnosis remains 'probable MOH'.

The second key concept is that in order to have a definitive diagnosis of MOH, the history of overuse alone is not sufficient - the patient's symptoms must resolve (or revert back to their original pattern) within 2 months of stopping the causative medication.

MOH usually presents with a tension-type headache, but it can also have migraine-like characteristics, or may even flip between the two within the same day. Overall, however, unilateral headache with visual disturbance is more in keeping with a diagnosis of migraine, and would not be a defining feature of MOH diagnosis. Keep in mind though that patients who have frequent migraines and take regular triptans are also at risk of developing medication overuse headaches.

Medication overuse headaches are generally worse after exercise.

Medication overuse headaches are generally worst in the morning.

Question:

A 17-year-old female presents to the emergency department with her boyfriend. He states that they recently had an argument and she took 'lots of tablets'. She denies this. She agrees to further investigations and her arterial blood gas (ABG) shows the following;

Normal range

pH: 7.47 (7.35 - 7.45)

pO2: 12 (10 - 14)kPa

pCO2: 3.6 (4.5 - 6.0)kPa

HCO3: 22 (22 - 26)mmol/l

BE: +1 (-2 to +2)mmol/l

Two hours later, she complains of feeling very unwell with ringing in her ears. A repeat ABG is performed and it shows the following;

Normal range

pH: 7.16 (7.35 - 7.45)

pO2: 11 (10 - 14)kPa

pCO2: 3.1 (4.5 - 6.0)kPa

HCO3: 8 (22 - 26)mmol/l

BE: -19 (-2 to +2)mmol/l

What is her most likely diagnosis?

A.Diuretic overdose

B.Gentamicin toxicity

C.Quinine toxicity

D.Lithium overdose

E.Aspirin overdose

Answer:Aspirin overdose

Explanation:

This represents the classic picture of aspirin overdose. Initial respiratory alkalosis due to stimulation of the central respiratory centre causing increased respiratory effort. Following this, a metabolic acidosis develops along side the respiratory alkalosis. This is due to the direct effect of the metabolite salicylic acid.

Question:

A 32-year-old man is referred to endocrinology from his GP with a three-month history of polyuria and polydipsia. He has a background of schizoaffective disorder for which he has been taking olanzapine and lithium for six months.

His blood test results are as follows:

Na+ 132 mmol/L (135 - 145)

K+ 3.6 mmol/L (3.5 - 5.0)

Urea 2.9 mmol/L (2.0 - 7.0)

Creatinine 100 µmol/L (55 - 120)

Glucose 5.0 mmol/L (4.0-7.0)

Urine osmolality is tested randomly, following eight hours of fluid deprivation then again after administration of desmopressin.

Random urine osmolality 90 mOsm/kg (50 - 1200)

Urine osmolality following fluid deprivation 750 mOsm/kg (50 - 1200)

Urine osmolality following desmopressin 850 mOsm/kg (50 - 1200)

What is the most likely diagnosis?

A.Cranial diabetes insipidus

B.Diabetes mellitus

C.Nephrogenic diabetes insipidus

D.Psychogenic polydipsia

E.Syndrome of inappropriate anti-diuretic hormone (SIADH)

Answer:Psychogenic polydipsia

Explanation:

Water deprivation test: primary polydipsia

urine osmolality after fluid deprivation: high

urine osmolality after desmopressin: high

Important for meLess important

The correct answer is psychogenic polydipsia. This is most common in patients with mental illness.

The patient is presenting with polyuria and polydipsia. He has borderline hyponatraemia (some patients are hyponatraemic and others have normal sodium) with a serum osmolality than can be calculated to be 271 mOsm/kg (normal range 275-295).

Normal plasma osmolality is 275-295 mOsm/kg, with thirst being triggered at approximately >285mOsm/kg. Normal urine osmolality has a wide range between 50 and 1200 mOsm/kg depending on the state of hydration. A normal response to dehydration is a rise in urine osmolality to >700 mOsm/kg.

The patient's random urine osmolality is low (<100 mOsm/kg) and in the context of excess drinking and passing urine this is abnormal.

Following monitored fluid deprivation for eight hours, his urine osmolality is 750 mOsm/kg, which is appropriately concentrated. Urine osmolality >700 effectively rules out diabetes insipidus.

Administering desmopressin and re-checking urine osmolality is useful for differentiating cranial and nephrogenic DI. It is actually not required in this scenario to confirm the diagnosis because both forms of DI are ruled out, but may be performed and reported as part of a standardised protocol. His concentrated urine remains concentrated after desmopressin administration.

The patient is taking lithium, which is a risk factor for nephrogenic DI. However, both cranial (central) and nephrogenic DI are ruled out by an appropriate concentration of urine in response to water deprivation.

Although a normal random fasting glucose does not definitively rule out diabetes mellitus, it suggests his polyuria and polydipsia is unlikely due to high glucose levels in diabetes mellitus.

Syndrome of inappropriate anti-diuretic hormone (SIADH) is a diagnosis of exclusion for hyponatraemia and is also managed with fluid restriction. It can be difficult to differentiate SIADH from psychogenic polydipsia, but the key is that urine osmolality (and urine sodium) are inappropriately elevated while plasma osmolality is low. In psychogenic polydipsia, both urine and plasma osmolality are low.

Question:

A 55-year-old lady is to undergo an elective hysterectomy tomorrow morning. What is the correct advice regarding oral intake before her operation?

A.Food/solids > 6 hours beforehand and clear fluids > 2 hours beforehand

B.Food/solids > 12 hours beforehand and clear fluids > 2 hours beforehand

C.Food/solids > 2 hours beforehand and clear fluids > 6 hours beforehand

D.Food/solids/clear fluids > 2 hours beforehand

E.Food/solids/clear fluids > 6 hours beforehand

Answer:Food/solids > 6 hours beforehand and clear fluids > 2 hours beforehand

Explanation:

The key recommendations are that adults and children should be encouraged to drink clear fluids up to 2 hours before elective surgery and should consume no solid food for 6 hours before elective surgery. These recommendations also apply to patients with diabetes and pregnant women not in labour. Breast milk is safe up to 4 hours before and other milk 6 hours before.

For emergency surgery in an adult, non-pregnant patient (who has not fasted), an anaesthetic technique known as Rapid Sequence Induction (RSI) can be used to reduce the risk of gastro-oesophageal reflux. In simple terms, this involves optimal preoxygenation, the use of an induction agent and suxamethonium, with the application of cricoid force at the onset of unconsciousness. As there has been no preoperative airway assessment, anaesthetists must be prepared for a difficult airway and any potential problems with laryngoscopy and intubation.

http://www.aagbi.org/sites/default/files/Perioperativefastinginadultsandchildren.4.pdf

Question:

A 69 year old female presents to the emergency department with a 2 day history of worsening flank pain. She has felt hot, feverish and been unable to keep fluids down. Examination reveals a blood pressure of 105/65 mmHg, tachycardia 115 beats per minute and left flank pain to palpation. Urine dipstick is positive for leucocytes +++ and nitrites +++. A diagnosis of pyelonephritis is made and intravenous gentamicin is prescribed.

What complication is most commonly associated with gentamicin?

A.Hepatitis

B.Nephrotoxicity

C.Optic neuritis

D.Ankle swelling

E.Angioedema

Answer:Nephrotoxicity

Explanation:

Aminoglycosides are nephrotoxic

Important for meLess important

Gentamicin is an amino glycoside antibiotic with excellent cover of gram negative bacteria. It is used for severe infections, and is particularly useful for severe infections of the urinary tract and within the abdomen.

A common complication associated with gentamicin usage is nephrotoxicity.

This is because of the narrow therapeutic window required to achieve a therapeutic dose. If we go above this index we risk nephrotoxicity.

Another common complication is ototoxicity and this is often examined in final exams.

More on Gentamicin - http://qjmed.oxfordjournals.org/content/102/12/873

Question:

A 38-year-old woman who has a 3-month old baby comes to see you as her friend's baby has had a hip ultrasound and she believes it is unfair that this has not been offered to her child. You explain to her that only babies who have risk factors for hip dysplasia are offered an ultrasound.

Which one of the following is a risk factor for hip dysplasia?

A.Forceps delivery

B.Maternal age greater than 40 years

C.Breech presentation

D.Ventouse delivery

E.Maternal obesity

Answer:Breech presentation

Explanation:

Breech presentation is a risk factor for developmental dysplasia of the hip

Important for meLess important

Ultrasound screening for developmental dysplasia of the hip (DDH) is done at 6 weeks of age for newborns with specific risk factors.

These include

A first-degree family history of hip problems in early life.

Breech presentation at or after 36 weeks gestation (irrespective of presentation at delivery)

Breech presentation at delivery if this is earlier than 36 weeks.

Furthermore, those children found to have a positive Barlow or Ortolani test are sent for a hip ultrasound to rule out DDH.

Question:

You are a final year medical student currently working in the acute medical assessment unit. A 17-year-old girl has presented with a sudden onset headache and fevers. You consultant asks you to do the lumbar puncture as everyone else is busy and she needs this urgently. You have never done a lumbar puncture by yourself, but have seen many be done and you feel confident you know the process of the procedure. What do you do?

A.Refuse to do the procedure and bleep the medical SHO to come immediately

B.Refuse to do the procedure and pass this over to the registrar for when he has finished his jobs

C.Agree to do the lumbar puncture as it is an emergency, but ask a staff nurse to supervise you

D.Agree to do the lumbar puncture as it is an emergency. Ensure you have fully explained to the patient that it is your first time and that you have taken adequate consent from the patient

E.Agree to do the lumbar puncture as it is an emergency, but document in the notes that it was your first time

Answer:Refuse to do the procedure and bleep the medical SHO to come immediately

Explanation:

In the GMC document, tomorrow's doctors, domain 1 talks about patient safety. It states that 'medical students undertake only appropriate tasks in which they are competent or are learning to be competent, and with adequate supervision.'

In this example doing it alone or with supervision by anyone less than a proficient FY1 is inadequate and unsafe. Thus the two options we have are to bleep the SHO immediately or hand it over to the registrar. Bleeping the SHO immediately is the best option, this patient is sick and your consultant has said she needs this straight away.

Question:

A 32-year-old female presents to the gastroenterology clinic for a review of her long-standing Crohn's disease. She has been taking budesonide for 3 months to induce remission and she feels well in herself now. She did not have any acute episodes during the treatment and her bowel habits are normal and regular. The doctor decides that she needs to be switched to maintenance therapy.

Which one of the following drugs is the most appropriate to prescribe?

A.Azathioprine

B.Budesonide

C.Mesalazine

D.Methotrexate

E.Oral glucocorticoids

Answer:Azathioprine

Explanation:

Azathioprine or mercaptopurine is used first-line to maintain remission in patients with Crohn's

Important for meLess important

The correct answer is azathioprine. This medication is used as first-line management to maintain remission in patients with Crohn's. Remember that the function of the enzyme thiopurine methyltransferase (TPMT) needs to be assessed before starting a patient on azathioprine because a deficiency in this enzyme (present in 1% of the population) could lead to bone marrow suppression with potentially deadly consequences.

Budesonide is a corticosteroid drug mainly used for asthma prophylaxis that can potentially be used as a second-line treatment to induce remission in patients with Crohn's disease.

Mesalazine is used second-line to glucocorticoids to induce remission, but they are not as effective. It appears to act locally on colonic mucosa and reduces inflammation through a variety of anti-inflammatory processes.

Methotrexate is the second-line medication used to maintain remission in patients with Crohn's. It is a folate derivative that inhibits several enzymes responsible for nucleotide synthesis, leading to suppression of inflammation as well as prevention of cell division. In this case, there are no indications to use the second-line management rather than the first-line one.

Oral glucocorticoids are the first-line medication to induce remission in patients with Crohn's. They work by reducing the activity and reactivity of the immune system.

Question:

A 23-year-old man presents to his GP with right-sided facial weakness. He reports that the right side of his face is much weaker in comparison to his left. This is particularly noticeable when smiling or chewing. The patient has also noticed occasional twitching of his right cheek. This came on 2 days ago, after a flu-like illness. He reports that it is already starting to become less prominent.

On examination, the entire right side of his face, including his forehead, has mild impairment of the facial muscles. Otoscopy is normal, examination of the eye is unremarkable and the remainder of a cranial nerve exam and upper limb neurological exam is normal.

Given the likely diagnosis, what is the recommended management?

A.Oral aciclovir only

B.Oral prednisolone and artificial tears

C.Oral prednisolone, oral aciclovir and artificial tears

D.Reassurance only with advice to return if symptoms have not resolved in 2 weeks

E.Urgent referral to ENT

Answer:Oral prednisolone and artificial tears

Explanation:

All patients with a Bell's palsy should be given oral prednisolone within 72 hours of onset

Important for meLess important

This man presents with the classical description of Bell's palsy. He has a unilateral facial weakness, which follows a lower motor neuron pattern with the forehead affected. Bell's palsy can present on a spectrum, with patients noticing anything from mild weakness with twitching to full paralysis.

It is important to differentiate Bell's palsy from a cerebral event and Ramsay-Hunt syndrome. A normal cranial nerve exam and upper limb neurological exam points away from a cerebral event, and lack of rash and normal otoscopy point away from Ramsay-Hunt syndrome. Equally, the fact he presented following an upper respiratory tract infection makes Bell's palsy more likely.

All patients with Bell's palsy should be offered oral prednisolone if they have presented within 3 days of onset. This should be given regardless of severity, and regardless of any improvement since onset. Eye protection, with either lid taping or lubricating eye drops (artificial tears), should be considered too. Therefore, the correct answer is oral prednisolone and artificial tears.

Oral aciclovir alone is incorrect, as it omits both steroids and eye protection which are required. Anti-viral medication can be considered for Bell's palsy, but are not given routinely as they have a relatively small chance of being beneficial.

Oral prednisolone, oral aciclovir and artificial tears are incorrect as explained above, there is no indication to add in an anti-viral.

Reassurance only and advice to return if symptoms have not resolved in 2 weeks is incorrect as he has presented within the 72 hours window and therefore can be given treatment. Whilst the condition is likely to resolve within 2 weeks even without treatment, it would be inappropriate to not offer an intervention.

An urgent referral to ENT is inappropriate here as the diagnosis can be made for certain and management offered in primary care. A non-urgent referral to ENT may be mandated for a severe or prolonged episode, treatment-refractory palsy, or where the diagnosis is not clear.

Question:

A 66-year-old man comes to see you for his routine asthma inhalers, which you agree to prescribe. Towards the end of the consultation, he mentions that he has noticed that he has had trouble maintaining his erections and asks if you could prescribe him some sildenafil.

Which one of the following is the most common side effect of sildenafil?

A.Priapism

B.Red tinging of vision

C.Infertility

D.Headaches

E.Hair loss

Answer:Headaches

Explanation:

Sildenafil is a commonly prescribed medication in general practice. Side effects of sildenafil include headaches, facial flushing, dyspepsia, and transient blue-green tingeing of vision.

Question:

Which of the following is associated with a good prognosis in rheumatoid arthritis?

A.Rheumatoid factor negative

B.HLA DR4

C.Anti-CCP antibodies

D.Rheumatoid nodules

E.Insidious onset

Answer:Rheumatoid factor negative

Explanation:

Question:

You are a FY1 assisting in gynaecology day surgery, one of your procedures to get signed off is an internal examination and female catheter, you mention this to the surgeon before he starts his list and he agrees to allow you to do this is theatre.

He tells you not to bother talking with the patients to get consent as they will be under anaesthetic and so unaware. What do you do?

A.Accept what the surgeon said as he is your senior and perform the procedures

B.Accept what the surgeon said as he is your senior but claim you don't feel well during the list and leave before doing any procedures

C.Refuse to do this and go and tell the patients what he said

D.Refuse to do this as its not following consent guidance

E.Report him to the GMC

Answer:Refuse to do this as its not following consent guidance

Explanation:

The GMC guidelines in Good Medical Practice, Intimate examinations and chaperones states, 'Before you carry out an intimate examination on an anaesthetised patient, or supervise a student who intends to carry one out, you must make sure that the patient has given consent in advance, usually in writing.'

Therefore, performing the procedure without consent would be wrong, as would lying to the surgeon about being unwell. Informing the patients is only going to cause unnecessary distress and doesn't deal with the point. Referring the surgeon to the GMC would be rather extreme in this case.

Question:

A 57-year-old woman presents to the emergency department with a severe episode of vertigo, nausea, and vomiting, and is unstable when walking. This has occurred over the last 6 months but is now worse. During this time, she has also had gradual hearing loss and tinnitus. The patient has a history of hypertension and type 2 diabetes mellitus.

An MRI is arranged which shows the following:

© Image used on license from Radiopaedia

What is the most likely diagnosis?

A.Cerebellar stroke

B.Cerebellar tumour

C.Cerebellopontine tumour

D.Internal acoustic meatus tumour

E.Posterior circulation stroke

Answer:Cerebellopontine tumour

Explanation:

Cerebellopontine tumour is correct. The image is an axial view of the patient's brain. To the right of the centre of the image, in front of where the cerebellum and pons meet (the cerebellopontine angle), a white lesion can be seen, suggesting a mass. Since this MRI is viewing the patient from the feet up, the actual location of the tumour is on the left. This MRI along with the history of progressively worsening episodes of tinnitus and vertigo, and gradual-onset hearing loss suggests a diagnosis of vestibular schwannoma (also known as acoustic neuroma), which is a benign tumour of Schwann cells around the vestibulocochlear nerve that tends to occupy the cerebellopontine angle. Involvement of the vestibulocochlear nerve leads to hearing and balance symptoms (tinnitus, gradual hearing loss, intermittent vertigo), and larger tumours can also affect cranial nerves V and VII leading to symptoms of facial numbness or paralysis.

Cerebellar stroke is incorrect. The image would show hyperdense (darker) lesions in the cerebellar tissue, which is not the case here. The white lesion at the junction between the cerebellum and pons (cerebellopontine angle) is not within the cerebellar tissue, as we'd expect a cerebellar stroke to be, and the well-defined, circular shape is more in keeping with a mass than ischaemia. Although a cerebellar stroke can present with vertigo and vomiting, patients would likely have additional symptoms/findings such as headaches, nystagmus, an intention tremor, staccato speech, dysdiadochokinesia, dysmetria and hypotonia. This patient's instability when walking is more likely to be due to vertigo rather than cerebellar dysfunction due to ischaemia. Her symptoms have also occurred multiple times and have been progressively worsening over time, making a stroke less likely.

Cerebellar tumour is incorrect. If it were a cerebellar tumour, the lesion would be located in the cerebellar tissue on MRI, which is not the case here. The white lesion lies in front of the cerebellum at its junction with the pons, known as the cerebellopontine angle. As mentioned above, if the cerebellum was involved, other associated features such as speech problems and nystagmus would likely also be present, which is not the case in this scenario.

Internal acoustic meatus tumour is incorrect. The mass is seen in front of the cerebellum at its junction with the pons, which is known as the cerebellopontine angle. The internal acoustic meatus is more lateral to this. An internal acoustic meatus mass is associated with facial nerve palsy and facial muscle weakness, which are not seen here.

Posterior circulation stroke is incorrect. Although this can present with vertigo, there are usually additional features such as sensory or motor defects, nystagmus, additional features of cerebellar dysfunction (such as staccato speech, intention tremor etc.), deafness, and homonymous hemianopia. These features are not seen here. As well as this, the MRI would show hyperdense (darker) lesions in the structures within the vertebrobasilar territory, including the brainstem, cerebellum, midbrain, temporal, and occipital lobes. This patient's symptoms have also occurred multiple times and have been progressively worsening over time, making a stroke less likely.

Question:

A 65-year-old man presents to a rural medical assessment unit with recurrent episodes of syncope. He is admitted into the hospital in the cardiology ward for a work-up.

Two hours into his admission he complains of dizziness and is mildly disorientated. On examination, his airway is patent, 15 breaths/minute, oxygen saturation 96% on air, blood pressure is 90/50 mmHg, and heart rate is 40 beats per minute. He is found to have an anaphylactic allergy to atropine on record.

What management option is most appropriate?

A.Adrenaline

B.Amiodarone

C.Atropine

D.Digoxin

E.Glucagon

Answer:Adrenaline

Explanation:

Isoprenaline/adrenaline infusion is an alternative treatment to atropine/transcutaneous pacing for a symptomatic bradycardia

Important for meLess important

This patient has symptomatic bradycardia causing haemodynamic instability, requiring rapid transcutaneous pacing; however, as this is not available, adrenaline infusion is an appropriate alternative treatment; thus, an adrenaline infusion should be given to this patient.

Although atropine infusion is usually given for symptomatic bradycardia, it is not appropriate as this patient is allergic, and it may worsen his condition.

Amiodarone is not considered beneficial for the treatment of hemodynamically unstable symptomatic bradycardia. It is useful in arrhythmias such as atrial fibrillation or in shockable rhythms such as VF and unstable VT.

Digoxin is not considered beneficial in bradycardia. In fact, it is dromotropic (reduces AV conduction speed), and unhelpful in symptomatic bradycardia.

Lastly, glucagon is reserved for cases of cardiovascular failure in the event of an overdose of beta-blocker medications. This would be an appropriate treatment for haemodynamically unstable bradycardia if it had been precipitated by excessive beta-blockade; however, this is not the case in this patient.

Question:

A 78-year-old man with a history of bronchiectasis is reviewed in the clinic.

Over the last week, he has had an increase in sputum, which is greener in colour than usual and he has felt breathless and feverish.

On examination, you note some right-sided crepitations that clear on coughing.

His observations are as follows:

Oxygen saturation 96% in air

BP 132/78mmHg

Heart rate 76/min

Respiratory rate 16/min

Temperature 37.4ºC

You send a sputum culture and treat him empirically with antibiotics as there is no recent sputum culture available.

What is the most common organism you would expect to find in his sputum?

A.Haemophilus influenza

B.Moraxella catarrhalis

C.Mycoplasma pneumoniae

D.Pseudomonas aeruginosa

E.Streptococcus pneumoniae

Answer:Haemophilus influenza

Explanation:

Bronchiectasis: most common organism = Haemophilus influenzae

Important for meLess important

The most common organism isolated from patients with bronchiectasis is Haemophilus influenza, which is the correct answer.

Moraxella catarrhalis is not correct. It is traditionally thought of as an upper respiratory tract pathogen but is increasingly recognised as causing bacterial pneumonia, particularly in patients with chronic lung disease, but is not the most common.

Mycoplasma pneumoniae is also incorrect. It can cause mild respiratory tract infections that can be self-limiting even without antibiotics but it can sometimes progress to more severe pneumonia.

Pseudomonas aeruginosa is not correct. It is a common colonising bacteria in patients with bronchiectasis and is associated with poorer long-term outcomes and can be resistant to commonly used antibiotics.

Streptococcus pneumoniae is classically recognised as the most common cause of pneumonia but can cause other serious infections such as pneumococcal meningitis. It is not the most common in bronchiectasis so in this case it is incorrect.

Question:

Which one of the following features is least likely to be seen in Henoch-Schonlein purpura?

A.Abdominal pain

B.Renal failure

C.Polyarthritis

D.Thrombocytopenia

E.Purpuric rash over buttocks

Answer:Thrombocytopenia

Explanation:

Question:

A 6 week old baby boy is brought to the clinic by his mother. She is concerned because although the left testis is present in the scrotum the right testis is absent. She reports that it is sometimes palpable when she bathes the child. on examination the right testis is palpable at the level of the superficial inguinal ring. What is the most appropriate management?

A.Discharge

B.Re-assess in 5 years

C.Laparoscopy

D.Re-assess in 6 months

E.Orchidopexy

Answer:Re-assess in 6 months

Explanation:

Undescended testes are not uncommon in young children. They may be present in 4% of term infants, but only in 1.3% children at 3 months of age. In this scenario the testis is retractile and can be managed expectantly.

Question:

A 20-year-old woman presents to the emergency department feeling drowsy and with generalised abdominal pain. Her blood pressure is 94/30mmHg. Urea and electrolytes show:

Na+ 123 mmol/l 135-145 mmol/l

K+ 6.1 mmol/l 3.5 - 5.0 mmol/l

Urea 4 mmol/l 2.0-7 mmol/l

Creatinine 84 µmol/l 55-120 µmol/l

What is the most likely diagnosis?

A.Gastroenteritis

B.Addisonian crisis

C.Intra-abdominal haemorrhage

D.Ecstasy abuse

E.Type 1 diabetes mellitus

Answer:Addisonian crisis

Explanation:

Severe hypovolaemia and hyponatraemia are suggestive of an addisonian crises. Symptoms are often vague.

Question:

Which one of the following is not a recognised feature of anorexia nervosa?

A.Raised cortisol levels

B.Low FSH

C.Raised growth hormone levels

D.Hyperkalaemia

E.Impaired glucose tolerance

Answer:Hyperkalaemia

Explanation:

Anorexia features

most things low

G's and C's raised: growth hormone, glucose, salivary glands, cortisol, cholesterol, carotinaemia

Important for meLess important

Question:

A 32-year-old man with a spinal cord injury is having his catheter changed on the ward. He starts feeling unwell during the procedure and his blood pressure increases to 201/123 mmHg but his heart rate remains at 65 bpm and he becomes flushed and sweaty in his face and neck. This settles once the new catheter has been placed and his blood pressure returns to normal.

Given this episode, which of the following is the most likely neurological level of this man’s spinal cord injury?

A.C7

B.T10

C.T12

D.L3

E.S1

Answer:C7

Explanation:

Autonomic dysreflexia can only occur if the spinal cord injury occurs above the T6 level

Important for meLess important

The combination of severe hypertension, flushing and sweating without a congruent response in heart rate in the context of spinal cord injury indicates an autonomic dysreflexia and this is an important presentation to be aware of as it is one of the few unique medical emergencies that can occur to spinal cord injured patients. There is often a clear noxious stimulus which has triggered the episode (in this case a catheter change).

The cause of a dysreflexia is an discontinuity between the nociceptors on the viscera and the brain stem autonomic centres due to the cord injury. All the pain receptors on smooth muscle on the abdominal and some pelvic viscera are carried by the sympathetics and the specific nerve which extends to the pelvis is the greater splanchnic nerve (which has its lowest innervation at T6 and so this is the lowest level at which autonomic dysreflexia can still occur).

The only neurological level offered which is above T6 is C7 and therefore this is the only correct answer.

Question:

A 75-year-old man presents to his GP with a one-week history of blood in his urine. There is some burning on passing urine but no other pain. There are no other urinary symptoms. He is aware that he has lost some weight recently but he is unsure of how much and over how long.

In his past medical history, he has type 2 diabetes mellitus, hypertension, and granulomatosis with polyangiitis. For these, he takes metformin, amlodipine, methotrexate and prednisolone. He is also known to have had malaria and schistosomiasis. There is no significant family history.

He has a 10 pack-year smoking history and drinks alcohol occasionally. He recently returned from 40 years working as a teacher travelling around rural Africa.

What is the most likely diagnosis?

A.Nephrolithiasis

B.Bladder urothelial carcinoma (also known as transitional cell carcinoma)

C.Squamous cell carcinoma of bladder

D.Clear cell renal cell carcinoma

E.Prostate adenocarcinoma

Answer:Squamous cell carcinoma of bladder

Explanation:

Schistosomiasis is a risk factor for squamous cell carcinoma of the bladder

Important for meLess important

This is a gentleman presenting with macroscopic haematuria, dysuria and weight loss. Broadly speaking, the source of urinary blood can be from the bladder, prostate, ureters, or kidneys. The combination of dysuria with haematuria points to the bladder. Further, the weight loss suggests malignancy.

In the developed world, approximately 90% of bladder cancers are transitional cell carcinomas. However, schistosomiasis is a major risk factor for the development of squamous cell carcinoma of the bladder. In endemic areas, 75% of bladder cancers are squamous in origin. Given his history of living in high-risk areas and known history of schistosomiasis, this is the most likely diagnosis.

Nephrolithiasis (kidney stones) would typically cause renal colic which might be described by a patients as waves of intense pain and feeling like they are unable to find a comfortable position.

Clear cell carcinoma is the most common pathological subtype of renal cell carcinoma. However, it is still epidemiologically less common than bladder cancer. Further, it would not cause bladder symptoms.

Prostate adenocarcinoma can cause macroscopic haematuria and is common. However, the history would typically involve nocturia, urinary frequency and stop-start urination.

Question:

A 74-year-old man presents with an 8-week history of right sided otalgia. This is associated with a sore throat and odynophagia. He smokes 20 cigarettes every day and is known to be a heavy drinker. On examination of the ear, there are no abnormalities noted.

What is the most likely cause of the otalgia?

A.Eustachian tube dysfunction

B.Acute otitis media

C.Cholsteatoma

D.Referred pain from nasopharyngeal carcinoma

E.Mastoiditis

Answer:Referred pain from nasopharyngeal carcinoma

Explanation:

Otalgia can be due to a primary or secondary cause. Primary otalgia is a result of pathology within the ear whereas secondary otalgia occurs due to referred pain from an external source.

Referred otalgia can occur due to one of five neural pathways (cranial nerve V, cranial nerve VII, cranial nerve IX, cranial nerve X, and via the second and third spinal segments, C2 and C3). Therefore, many parts of the head and neck can refer pain back to the ears.

Otalgia in the absence of any ear signs is a red flag for head and neck malignancy and must be investigated further. In this case, the otalgia is likely to be explained by referred pain from the pharynx, and the pharynx must be assessed for malignancy, particular due to the age of the gentleman and the risk factor profile.

Question:

A 3-year-old girl is brought into the paediatric assessment unit by her parents after they witnessed her going stiff and falling onto the floor before shaking for three minutes. Over the three days preceding this, she has been suffering with a fever and coryzal symptoms. Her father also noticed a roughened rash on her torso and a swollen tongue yesterday.

This is the first time the patient has suffered a seizure and she has met all of her developmental milestones.

After being assessed, it is decided the girl is safe to go home.

What advice should be given to the parents?

A.An ambulance must be called if another seizure occurs and persists for longer than five minutes

B.An ambulance must be called immediately if another seizure occurs

C.Prophylactic antipyretics should usually be given following an event like this

D.The patient will require referral to a paediatric neurologist

E.There is no increased risk of the child developing epilepsy

Answer:An ambulance must be called if another seizure occurs and persists for longer than five minutes

Explanation:

Parents should be advised to call an ambulance if a febrile convulsion lasts >5 minutes

Important for meLess important

The sandpaper rash and strawberry tongue mentioned in the vignette indicates a diagnosis of scarlet fever, a condition which is commonly associated with febrile seizures.

According to NICE guidelines on febrile seizures, published in 2018, an ambulance must be called if another seizure occurs and persists for longer than five minutes.

Calling an ambulance immediately if another seizure occurs would be incorrect as simple febrile seizures lasting only a few minutes pose very little risk to the health of the child.

Prophylactic antipyretics should not be routinely prescribed as this has not been shown to reduce seizure frequency and is not recommended by NICE.

A referral to a paediatric neurologist would be incorrect as this is only indicated if a child presenting with a febrile seizure has neurodevelopmental delay and/or signs of a neurocutaneous syndrome or metabolic disorder.

There is no increased risk of the child developing epilepsy would be incorrect as there is indeed an increased risk of a child developing epilepsy after they have suffered a febrile seizure.

Question:

A 60-year-old man has blood tests after presenting with vague symptoms of anorexia and weight loss. His liver function tests are shown below. He comes back to discuss his results and you notice he looks slightly yellow.

Bilirubin 168 µmol/l 3 - 17 µmol/l

ALP 1149 u/l 30-130u/l

ALT 71 u/l 5 - 65 u/l

Gamma-GT 583 u/l 11 - 50 u/l

What is the likely diagnosis?

A.Pancreatic cancer

B.Hepatocellular carcinoma

C.Gall stones

D.Hepatitis C

E.Haemolysis

Answer:Pancreatic cancer

Explanation:

This man has painless jaundice. Pancreatic cancer needs to be excluded in all adults presenting with painless jaundice.

The liver function tests show an obstructive cause for the jaundice (bigger raise in ALP and GGT than ALT). This suggests the biliary tree has been obstructed and in the absence of pain, this is likely to be due to a pancreatic mass rather than gall stones. This should be investigated with a CT scan.

Question:

A 64-year-old woman who is known to have rheumatoid arthritis presents with pain in her right ring finger when she flexes it. On one occasion she reports it became 'stuck'. Clinical examination is unremarkable other than a palpable nodule at the base of the finger. What is the most likely diagnosis?

A.Swan-neck deformity

B.Dupuytren's contracture

C.Trigger finger

D.Mallet finger

E.Boutonniere deformity

Answer:Trigger finger

Explanation:

Question:

A 30-year-old intravenous drug user is diagnosed as having osteomyelitis of the right tibia. What is the most likely causative organism?

A.Salmonella species

B.Haemophilus influenzae

C.Staphylococcus aureus

D.Enterobacter species

E.Streptococcus pyogenes

Answer:Staphylococcus aureus

Explanation:

Question:

A 65-year-old man with longstanding, poorly controlled hypertension presents to the emergency department following a seizure (with no prior epileptic history). He is also complaining of shortness of breath, and palpitations. His observations are within normal range except for a heart rate of 108 bpm and blood pressure of 200/110 mmHg.

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An ECG from 2 years previous shows normal sinus rhythm. The patient takes no regular medications.

What is the most likely underlying cause of the ECG changes?

A.Bony metastases

B.End-stage renal failure

C.NSTEMI

D.Pulmonary embolism

E.Tricyclic antidepressant overdose

Answer:End-stage renal failure

Explanation:

This is a difficult question, made more doable with preexisting knowledge of electrolyte abnormalities in renal disease patients. This ECG shows evidence of hypocalcaemia and hyperkalaemia, a common finding (~25%) in patients with end-stage renal failure - here, due to uncontrolled hypertension. These abnormalities can trigger seizures. Evidence for this being the correct answer is three-fold:

1) The patient's history of chronic hypertension which is poorly controlled presents a very plausible mechanism for severe kidney disease.

2) There is clearly a very long QT interval. This could be secondary to a genetic disorder; medication (notably antipsychotics); or hypocalcaemia/kalaemia. The previous normal ECG means it is unlikely to be genetic, and the patient takes no regular medications. Therefore, electrolyte abnormality is the likely culprit - in this case, hypocalcaemia. This is due to poor absorption of calcium from the gut as a result of decreased hydroxylation of vitamin D in the kidney (which is needed for calcium uptake). Note: hypercalcaemia can also occur in renal disease due to tertiary hyperparathyroidism, but the ECG doesn't show any changes associated with hypercalcemia (see below).

3) There are also some features of hyperkalaemia: P wave flattening and some mild T wave peaking. Both this and hypocalcaemia can be trigger seizures and palpitations.

Bony metastases will likely cause hypercalcaemia, which shows as a shortened QT interval, U waves, and biphasic T waves.

Pulmonary embolism can cause characteristic S1Q3T3 changes, although sinus tachycardia is by far the most common finding.

NSTEMI is an unlikely cause of this presentation, and there is no evidence of it on the ECG (ST segment depression, T wave inversion).

Tricyclic antidepressant overdose causes ECG changes of widened QRS complexes and broad complex dysrhythmias. It can often be very cardiotoxic.

Question:

A 60-year-old man with a background of hypertension presented to the emergency department complaining of visual disturbance. He noticed the symptoms as soon as he woke up in the morning at around 7am. He was otherwise well on the previous night with no neurological symptoms.

Examination shows right homonymous hemianopia with reduced sensation on the right side of the body. Urgent computed tomography (CT) scan of the head showed a left occipital infarct. He was not suitable for thrombolysis as the onset of his symptoms were unclear. Under the current recommendation, standard target time for thrombectomy is within 6 hours.

An extended target time of up to 24 hours may be considered in which of the following circumstances?

A.Advanced brain imaging (such as CT perfusion or diffusion-weighted MRI sequences) indicates substantial salvageable brain tissue is still present

B.First episode of stroke

C.Patient with underlying acquired or genetic thrombophilia disorder

D.Patient who has undergone recent cardiac or endovascular surgery

E.Patient with confirmed anterior circulation stroke

Answer:Advanced brain imaging (such as CT perfusion or diffusion-weighted MRI sequences) indicates substantial salvageable brain tissue is still present

Explanation:

For thrombectomy in acute ischaemic stroke, an extended target time of 6-24 hours may be considered if there is the potential to salvage brain tissue, as shown by imaging such as CT perfusion or diffusion-weighted MRI sequences showing limited infarct core volume

Important for meLess important

Answer number 1 is correct.

NICE recommends thrombectomy should be considered as soon as possible for people who fulfil the following criteria:

last known to be well up to 24 hours previously (including wake-up strokes)

Who have acute ischaemic stroke and confirmed occlusion of the proximal posterior circulation (that is, basilar or posterior cerebral artery) demonstrated by CTA or MRA

There is the potential to salvage brain tissue, as shown by imaging such as CT perfusion or diffusion-weighted MRI sequences showing limited infarct core volume

Question:

You are working in a GP surgery when you have been asked to review a urine result of a 28-year-old woman who is currently 10 weeks pregnant. The urine sample was collected during her recent appointment with her midwife and the result has returned showing the presence of Escherichia coli. You speak to the patient on the phone to discuss the results and learn that she is well with no history of urinary symptom, abdominal pain or temperature.

Which of the following is the most appropriate management option?

A.Antibiotic prescription for 3 days

B.Does not require any treatment as she is currently asymptomatic

C.Does not require any treatment as Escherichia coli are common commensal bacteria found in urine during pregnancy

D.Does not require any treatment as her pregnancy is currently in the first trimester and the risk of complication is low

E.Antibiotic prescription for 7 days

Answer:Antibiotic prescription for 7 days

Explanation:

Asymptomatic bacteriuria in pregnant women should be immediately treated with antibiotics

Important for meLess important

Asymptomatic bacteriuria is common. NICE recommends treatment for asymptomatic bacteria in pregnancy as it is a risk factor for pyelonephritis, low birth weight and premature delivery. The current guidance advises treatment for 7 days.

Escherichia coli are pathogenic organisms known to cause different disease including urinary tract infection and gastroenteritis.

Question:

An elderly man with aortic stenosis is assessed. Which one of the following would make the ejection systolic murmur quieter?

A.Left ventricular systolic dysfunction

B.Thyrotoxicosis

C.Mixed aortic valve disease

D.Expiration

E.Anaemia

Answer:Left ventricular systolic dysfunction

Explanation:

Left ventricular systolic dysfunction will result in a decreased flow-rate across the aortic valve and hence a quieter murmur.

Question:

A 1-week-old infant is referred following episodes of vomiting, feeding intolerance , and abdominal distension. Examination reveals watery stools with specks of blood present within the nappy. An abdominal X-ray is requested which reveals gas cysts in the bowel wall. What is the most likely diagnosis?

A.Intussusception

B.Necrotizing enterocolitis

C.Bowel perforation

D.Hirschsprung's disease

E.Intestinal malrotation

Answer:Necrotizing enterocolitis

Explanation:

The correct answer is necrotizing enterocolitis due to the symptoms and the abdominal x-ray revealing gas cysts in the bowel wall. Even though Intussusception presents with vomiting and abdominal distention, red currant jelly stools are often used to describe the nature of rectal bleeding. The condition is unlikely at 1 week and more common between 3-12 months. An abdominal x-ray would reveal intestinal obstruction rather than gas cysts. Intestinal malrotation often presents with bilious vomiting rather than just normal vomiting, and blood stained diarrhoea. Hirschsprung's is usually noticed in the first 24-48 hours when meconium fails to pass. Vomiting and passage of liquid stools (not diarrhoea) are present however blood stained diarrhoea is not seen. An x-ray would reveal an air-fluid level. Bowel perforation would show as air underneath the diaphragms on an abdominal x-ray (pneumoperitoneum)